

CORRECTIVE ACTION PLAN

U-Haul Center #708-57

3601 Santa Rosa, Santa Rosa, California

Prepared for:

AMERCO Real Estate Company

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Project No. 93HW014



EXECUTIVE SUMMARY

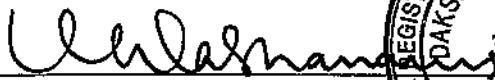
SOTA Environmental Technology, Inc. (SOTA) has prepared this Corrective Action Plan (CAP) to remediate petroleum hydrocarbon contamination at the U-Haul Center #708-57 site, Santa Rosa, California. The CAP presents SOTA's approach to remediate hydrocarbon-impacted groundwater and soil at the U-Haul Center. The CAP is prepared in accordance with (a) County of Sonoma Department of Health Services Environmental Health Division, Hazardous Materials Program, Leaking Underground Storage Tank Program, Guidelines for Site Investigation – Nov. 1992, (b) UST regulations included in the California Code of Regulation (CCR), Article 11, Title 23, Division 3, Chapter 16, Sections 2720 and 2725 through 2728, the California Health and Safety Code, Division 20, Chapter 6.7, Section 25280(b), and (c) Tri-Regional Board Staff Recommendations for Preliminary Investigations and Evaluation of Underground Tank Sites – August 1990, and March 1994.

SOTA's preferred corrective action consists of an innovative in situ remedial technology: chemical oxidation using ozonation. Two remediation technology alternatives, natural attenuation, and enhanced in situ bioremediation using oxygen releasing compound, were evaluated in this CAP. These two remedial technologies were compared with in situ chemical oxidation using ozonation to evaluate the most cost effective method of cleaning up the site. SOTA proposes to enhance in situ intrinsic bioremediation and natural attenuation processes which are currently occurring at the site, via injection of the ozone into the petroleum hydrocarbon impacted groundwater and soil beneath the site using the ozone sparging wells. The estimated cost of enhanced in-situ bioremediation is \$ 199,000. The projected time for cleanup using this alternative will be one to 1.5 years.

The corrective actions described in this proposed plan in our opinion are the preferred remedy for the site. Changes to the preferred corrective action or a change from a preferred corrective action to another corrective action may be made if public comments or additional data indicate that such a change will result in a more appropriate remedial action that will be technical feasible and cost effective.

ENGINEER'S CERTIFICATION

I certify that the work performed and the report prepared herein was conducted under the direct supervision of the undersigned who is a Registered Civil Engineer and Registered Environmental Assessor in the States of California and Arizona.





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California Registered Environmental Assessor #01046 Expires on 6-30-06
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1.0 INTRODUCTION

SOTA Environmental Technology Inc. (SOTA) is pleased to submit a proposed Corrective Action Plan (CAP) for U-Haul Center #708-57, located at 3601 Santa Rosa Avenue, Santa Rosa, California (Figure 1). The CAP presents SOTA's innovative approach to remediate hydrocarbon impacted soil and groundwater in a site specific, technically feasible, and cost effective manner. The CAP is prepared in accordance with (a) County of Sonoma Department of Health Services Environmental Health Division, Hazardous Materials Program, Leaking Underground Storage Tank Program, Guidelines for Site Investigation – Nov. 1992, (b) UST regulations included in the California Code of Regulation (CCR), Article 11, Title 23, Division 3, Chapter 16, Article 11, Sections 2720 and 2725 through 2728, the California Health and Safety Code, Division 20, Chapter 6.7, Section 25280(b), and (c) Tri-Regional Board Staff Recommendations for Preliminary Investigations and Evaluation of Underground Tank Sites – August 1990, March 1994. The CAP includes the following elements:

- An assessment of the impacts, including physical/chemical characteristics of the unauthorized release, a comprehensive summary of the findings of past site assessment activities, and hydro-geologic characteristics of the subject site and surrounding area.
- Applicable cleanup levels for groundwater that is affected or threatened by the unauthorized release.
- A feasibility study to evaluate remedial alternatives for mitigating the adverse effects of the unauthorized release and the cost-effectiveness of each cleanup strategy.
- Selecting the most feasible corrective action for the subject site, and
- Proposing monitoring plan to evaluate the effectiveness of the corrective action.

2.0 SITE BACKGROUND AND PREVIOUS INVESTIGATION

The U-Haul site had originally contained a total of three USTs of capacities ranging between 550 gallons to 15,000 gallons (Figure 2). In March 1987, the 550-gallon waste oil UST, was removed from the north portion of the site. In September 1993, the 10,000-gallon gasoline UST and 15,000-gallon diesel oil UST were removed from the central portion of the site.

2.1 Site Identification

Complete site address: 3601 Santa Rosa Avenue
Santa Rosa, CA

Assessor's parcel number (APN): 134-123-034

Property owner's/Responsible Party's information:

AMERCO Real Estate Company
2727 North Central Avenue
Phoenix, Arizona 85004

Current Consultant's Contact Information:

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5151 Shoreham Place, Suite 260
San Diego, CA 92122
858-404-7390

LOP Case Number: 00002091

2.1 Waste Oil UST

The former waste oil tank pit area was located east of the U-Haul maintenance area and south of the U-Haul Center property fence (Figure 3). After the waste oil UST removal in 1987, an approximately 6-feet wide by 10-feet long tank pit excavation was partially filled with construction debris and residual contaminated soil. The area was fenced to prevent any unauthorized entry. In January 1988, four soil borings were drilled adjacent to the former waste oil UST pit area. Three of soil borings were converted to monitoring wells. In March 1988, a shallow vapor gas survey was conducted in the vicinity of the former waste oil excavation. In October 1988, one of the monitoring wells near the waste oil tank was abandoned. SOTA, on October 20, 1994, overexcavated the former waste oil tank pit area, and backfilled with imported clean soil and paved the surface with concrete. The overexcavation activities were inspected by the County of Sonoma, Health Department Geologist, Mr. Cliff Ives. Mr. Ives directed SOTA's engineer, Dr. Dakshana Murthy on site to collect discrete soil samples of visibly contaminated areas to ensure that all contaminated residual soil was removed at the time of overexcavation activities. A total of seven discrete soil samples were collected during overexcavation and analyzed by Del Mar Analytical of Irvine, California.

Minor concentrations of TRPH and BTEX were detected in the bottom and south side wall of the tank pit. Mr. Ives recommended overexcavation along the south wall and resample for

confirmation. Approximately 10 to 15 cubic feet of soil was excavated and two discrete soil samples (S2 at 10.5 feet and SW at 8 feet) were collected and analyzed. The laboratory data analysis indicated a non-detect TRPH concentration and trace concentrations of toluene and xylenes. The laboratory test results are presented in Figure 3. The overexcavated soil was temporarily stockpiled on-site. Approximately, 50 cubic yards of soil was transported, and disposed of at BFI Waste System, 4001 North Vasco Road, Livermore, California on December 19, 1994 by Den Beste Transportation, Inc. of Novato, California. Based on the laboratory test data and non-detect gasoline, diesel, BTEX in groundwater monitoring data collected at well MW-1 in June 2005, it was concluded that excavation of residual contaminated soil around the waste oil UST was complete.

2.2 Gasoline and Diesel USTs

In March 1988, a shallow vapor gas survey was conducted around the 15,000 gallon capacity UST used to store gasoline. In January 1989, the 15,000-gallon UST was found to be leaking. It was estimated that approximately 1,100 gallons of regular gasoline was released. It was understood that the leak had been repaired and the UST was reused to store diesel fuel.

In January 1989, another monitoring well (J-01) was installed a few feet south of the 15,000-gallon UST. Earthtech Ltd. conducted a preliminary site assessment during September 1990. The site assessment included drilling three soil borings around the former waste oil tank and one near the 15,000-gallon UST. Two groundwater-monitoring wells (MW-1 and MW-2) were installed near the former waste oil UST and the fuel dispenser island. Results of laboratory soil analyses, indicated elevated concentrations of petroleum constituents, oil and grease, and heavy metals. Analysis of groundwater indicated free product at MW-2, and marginally elevated TPH/BTEX concentrations at MW-1.

During September 1991, per Sonoma County Environmental Health Services direction, an interim free product recovery system was installed at MW-2 and approximately 100 gallons of free product was recovered.

In August 1991, Earthtech conducted an extensive soil gas survey to delineate the aerial extent of the hydrocarbon plume. During February 1992 and August 1992, at the request of the Sonoma County Environmental Health Services, a second phase site assessment was conducted by Earthtech. Results of the laboratory tests indicated that the soil contamination was typically restricted at the capillary fringe. The interpretation of the analytical data concluded that the western, northwestern, and southwestern edges of the contamination plume were defined.

On August 26, 1993, SOTA submitted an Interim Remedial Action Plan (IRAP) to remove both the 10,000-gallon and 15,000-gallon USTs, monitor the limits of excavations, backfill the pits, and remove any floating free product. On September 29, 1993, the two USTs were removed by Post-Pisani Construction, Inc. of Sacramento, California under the CSDHS environmental health specialist's supervision. A total of 350 cubic yards petroleum contaminated soils were excavated and disposed of at the Redwood Landfill Facility of Novato, California, in accordance with all applicable federal, state, and local laws, rules, and regulations under the direct supervision of the lead regulatory agency (CSDHS) representative. Findings for the USTs removal, soil excavation and disposal, and confirmatory soil sampling activities were presented in Figure 4 and Table 1 and in the tank removal report (SOTA, 1993).

At present, SOTA is conducting groundwater monitoring program at the subject site on a semiannual basis. The last monitoring event took place in June 2005. The extents of soil and groundwater contamination are present in Section 3.0.

2.3 Local Geology and Hydrogeology

The Santa Rosa Valley is a structural basin that has been filled with as much as 4,000 feet of alluvial deposits. Principal geologic units in the Santa Rosa Valley include Holocene alluvium consisting of unconsolidated gravel, sand, silt, and clay; Pleistocene alluvium primarily consisting of slightly indurated lenticular beds of silty clay, silt, sand, and gravel; Pleistocene Glen Ellen and Merced Formation consisting of consolidated interfingering coarse grain alluvial fan and fine grain lacustrine deposits, indurated Pliocene Sonoma Volcanics, and basement rocks of Jurassic to Cretaceous Franciscan Assemblage. It is likely that the more recent (Holocene and Pleistocene) alluvial sediments in the site vicinity were deposited by ancestral southwest flowing Santa Rosa and Matanzas Creeks.

Natural topography surrounding the site gently slopes to the southwest. The surface drainage is generally a sheet flow in the same direction. The site is located at approximately 100 feet above mean sea level. Site soils consist predominantly of sandy gravel, gravelly silty sand, silty clayey sands, sandy clayey silts, and sandy silty clay.

The site is located in the Russian River Hydrologic Unit (RWQCB, 1996). Current and potential beneficial uses of groundwater and nearby surface waters have been designated by the Regional Water Quality Control Board (RWQCB). Groundwater basin in this area is Santa Rosa Valley, which has existing beneficial uses as domestic supply. The nearest surface water body is the Kawana Springs which eventually drains into Russian River. Russian River has existing beneficial uses as municipal and domestic, agricultural, industrial process and service supply, and groundwater recharge. Beyond this, it provides uses of water as navigation, hydropower generation, contact and non-contact water recreation, commercial and sport fishing, warm, cold, and wild freshwater habitats, migration of aquatic organisms, spawning, reproduction, and/or early development, estuarine habitat, and habitat for rare, threatened, or endangered species. The nearby river Laguna de Santa Rosa, has existing beneficial uses as agricultural, industrial process and service supply, contact and non-contact water recreation, commercial and sport fishing, cold, and wild freshwater habitats, migration of aquatic organisms, and potential use as aquaculture.

2.4 Groundwater

A recent groundwater gradient map (June 2005) is presented as Figure 2. Water level measurements ranged from 5.66 to 11 feet below ground surface (bgs). The hydraulic gradient at this site is relatively flat, estimated at 0.006 to 0.01 ft/ft. The direction of groundwater flow within the uppermost, shallow aquifer is generally toward the east around the former diesel and gasoline UST area, and towards northwest around the former waste oil UST area. A summary of these measurements is listed in Table 2. The site-specific hydraulic conductivity and effective porosity data for the site are not available. SOTA estimated hydraulic conductivity and the effective porosity for the site based on the type of the underlying aquifer material, and literature data. The hydraulic conductivity was estimated at 0.01 feet per day and effective porosity

(specific yield) at 25 %. An average horizontal seepage velocity beneath the site is extremely low and was estimated at 0.14 feet/year.

Based on SOTA personnel's visual site inspection results, and review of the regulatory agency information, the upper most aquifer beneath the site and in the immediate vicinity of the subject site is not currently utilized for water supply. No future uses of groundwater in the immediate vicinity of the subject site have been identified. It is unlikely that groundwater in the upper most aquifer will be utilized in the future due to extremely low water bearing characteristics (very low hydraulic conductivity and transmissivity). No water supply wells (domestic, municipal or agricultural wells) were identified beneath and in the immediate vicinity of the subject site. Also, no surface water, ponds, surface impoundments, streams, creeks, wetlands or waste disposal facilities/structures were found at the subject site or within 750 feet of the site. No basements were identified in the buildings at the subject site. The only structures that may act as potential vapor petroleum receptors identified at the site are utility line trenches and vaults (sanitary sewer, water line, telephone, and electric trenches), however, they are relatively shallow (2 feet to 4 feet bgs) comparing to the source of the petroleum release (15 feet to 20 feet bgs).

3.0 CONTAMINANTS CHARACTERISTICS

Based on the results of numerous environmental site investigations of the subject site, suspected past releases from UST systems to soil and groundwater include gasoline, diesel, and fuel oxygenate. The following sub-sections provide descriptions and physical and chemical properties of the contaminants of concern.

3.1 Gasoline

Gasoline is composed of hydrocarbons and “additives” that are blended with the fuel to improve fuel performance and engine longevity. The hydrocarbons fall primarily in the C₄ to C₁₂ range. The lightest of these are spilled gasoline that is highly-volatile and which rapidly evaporates. The C₄ and C₅ aliphatic hydrocarbons rapidly evaporate from spilled gasoline (hours to months, depending primarily on the temperature and degree of contact with air). Substantial portions of the C₆ and heavier hydrocarbons also evaporate, but at lower rates than for the lighter hydrocarbons.

The aromatic hydrocarbons in gasoline are primarily benzene (C₆H₆), toluene (C₇H₈), ethylbenzene (C₈H₁₀), and xylenes (C₈H₁₀); these are collectively referred to as “BTEX”. Some heavier aromatics are also present, including low amounts of polycyclic aromatic hydrocarbons (PAHs). Aromatics typically comprise of 10% to 40% of gasoline. BTEX has relatively high water solubility and is adsorbed poorly by soils. Thus, they have high mobility in the environment, moving readily through the sub-surface. When released into surface bodies or water, these materials exhibit moderate to high acute toxicity to aquatic organisms. Although environmental media are rarely contaminated to the extent that acute human toxicity is an issue, benzene is listed by the EPA as Group A Carcinogen (known human carcinogen) and, thus, exposure to even trace levels of this material is considered significant.

3.2 MTBE

Methyl tert-butyl ether (MTBE) is a gasoline oxygenate that results in decreased emissions of carbon monoxide (CO) and ozone (O₃) precursor compounds. Of the several ethers and alcohols that may serve as oxygenates, MTBE is the most frequently used. The potential human health risks associated with MTBE have led the EPA to issue an Advance Notice of Proposed Rulemaking under Section 6 of the Toxic Substances Control Act that is intended to reduce or to eliminate the use of MTBE as a gasoline additive in the United States. Although the MTBE detected at the site is believed to be a component of gasoline contamination, it is discussed separately due to various components, which make it act differently in the environment than other gasoline components.

On the basis of its physical-chemical properties, MTBE is more water-soluble, has lower octanol water partition coefficient and soil sorption coefficient, and is more slowly biodegraded than the BTEX components of gasoline. These observations also support the monitoring well findings that MTBE plumes can extend beyond those of BTEX.

When MTBE is in the soil as the result of a petroleum release, it may separate from the rest of the petroleum, reaching the groundwater first and dissolving rapidly. Once in the groundwater

MTBE travels at about the same rate as the groundwater whereas benzene and other petroleum constituents tend to biodegrade and adsorb to soil particles, thus MTBE is typically found at the leading edge of gasoline plumes. However, MTBE concentration at the subject site were reported relatively low (i.e., 190 micrograms per liter ($\mu\text{g/L}$) for the highest concentration).

3.3 Diesel

Diesel fuel boils between 160 to 400°C. Hydrocarbons in diesel fuel typically fall in the C_{10} to C_{20} range. Because of their higher molecular weights, constituents in these products are less volatile, less water soluble, less mobile, and less biodegradable than gasoline range hydrocarbons.

4.0 EXTENT OF CONTAMINATION

The following sections describe a lateral and vertical extent of residual soil contamination and petroleum hydrocarbon plumes in groundwater underneath the site (Table 1 and Table 3). Figure 5 show approximate horizontal extent of petroleum impacted soils at the site. Figure 6 shows the cross section of residual petroleum soil impacted soils at the diesel UST area. Figure 8 shows the current (06/05) groundwater quality at the site.

4.1 Extent of Soil Contamination

A summary of historical soil chemical data is presented in Table 1. In general, the extent of the residual petroleum-hydrocarbon impacted soils are confined to the immediate vicinity of the former diesel and gasoline UST locations and has been biodegraded and are limited in small pockets between 15 feet bgs to 20 feet bgs.

4.2 Extent of Groundwater Contamination - TPH

No state MCLs have been established for TPH-g and d. However, it is useful to analyze these constituents to help monitor the extent and migration of the contaminant plume(s) at the site. The diesel plume is currently centered near monitoring wells MW-2, J-01, and MW-103 around former diesel UST. In June 2005, TPH-d was detected in three wells (i.e., MW-2, J-01, and MW-103) at concentrations ranging from 170 µg/L at MW-103 to 5,400 µg/L at MW-2. As indicated by the groundwater analytical data, TPH-d was not migrating off-site.

The gasoline plume in groundwater at the site is currently centered in the area of the monitoring wells MW-2, J-01, MW-101, MW-103, and MW-301 around the former gasoline and diesel USTs. TPH-g was detected in five wells (i.e., MW-2, J-01, MW-101, MW-103, and MW-301) at concentrations ranging from 77 µg/L at MW-101 to 9,530 µg/L at MW-2. TPH-g was not migrating off-site.

4.3 Extent of Groundwater Contamination - BTEX and MTBE

The benzene plume is similar to the gasoline plume and is currently centered near monitoring wells MW-2, J-01, MW-101, and MW-103. The MTBE plume is currently centered east and south of the monitoring wells MW-2, J-01, and MW-101. Dissolved concentrations of MTBE in groundwater that exceed the state MCL of 13 µg/L were detected in three monitoring wells during the June 2005 sampling event.

4.4 Estimated Volume of Contaminated Soil and Groundwater

An evaluation of soil data collected during SOTA's most recent investigation and historical soil chemical data verified previous findings related to the soil impact at the site. Near the diesel UST area, the volume of soil contamination is conservatively estimated as approximately 60 feet wide by 60 feet long and having a depth of 5 feet at the average soil petroleum hydrocarbons concentration of 400 mg/kg. The soil density is estimated as 1.80 g/cm³. The total mass of hydrocarbons in soil is estimated at 360 kg (794 lbs) and is limited to the vicinity of the former tank area. However, due to the heterogeneous characteristics of the absorbed petroleum

hydrocarbons in soil, the calculated volume of contaminated soil might not accurately represent the mass.

Estimates of the volume of groundwater containing petroleum hydrocarbons (including gasoline, diesel, BTEX, and MTBE) are based on the horizontal and vertical distribution of petroleum hydrocarbons in groundwater. Near the diesel and gasoline USTs area, the volume of groundwater contamination is conservatively estimated as approximately 60 feet wide by 60 feet long and having a depth of 5 feet at the average groundwater petroleum hydrocarbons concentration of 4 mg/L. The porosity is estimated as 0.25. The total mass of hydrocarbons in groundwater is estimated at 1 kg (2 lbs).

4.3 Potential Impact to Surface Water

The nearest surface water to the subject site is the Kawana Springs which eventually drains into Russian River. Russian River has existing beneficial uses as municipal and domestic, agricultural, industrial process and service supply, and groundwater recharge and habitats.

Based on the recent groundwater monitoring sampling at the subject site, TPH-d, TPH-g, and MTBE were detected on the center of the subject site. Therefore, impact to surface water from release of contaminant from soil or groundwater is minimum.

4.4 Potential Impact to Air

Because the subject site is completely surfaced with asphalt or concrete, impact to air from release of contaminant vapors from soil or groundwater does not pose a health risk concern for site users.

5.0 GROUNDWATER CLEANUP LEVELS

The objective of the proposed remediation program described herein is to reduce the residual concentrations of petroleum hydrocarbon constituents in the groundwater to below cleanup levels acceptable to the California Regional Water Quality Control Board (RWQCB), North Coast Region (1). The soil and groundwater contamination assessment and monitoring activities conducted on the subsurface soil and groundwater contamination that will serve as the basis for the plan described herein. The extents of soil and groundwater contamination are described in Section 3.0.

5.1 Groundwater Cleanup Levels

The site-specific cleanup is the goal for protecting human health and the environment at the site. The cleanup levels specify contaminants and media of concern and preliminary remediation goals. The proposed target groundwater clean-up levels for the site are the current established RWQCB, North Coast Region (1) groundwater clean up levels. The proposed target (driven) groundwater cleanup levels for the site are based on the currently established RWQCB groundwater cleanup levels:

Benzene – 1 µg/L

Toluene – 150 µg/L

Ethylbenzene – 300 µg/L

Xylenes – 1750 µg/L

MTBE – 13 µg/L

6.0 REMEDIATION TECHNOLOGIES AND FEASIBILITY ANALYSIS

Several site investigations and groundwater sampling/monitoring activities have been performed since 1988 and have continued to the present. Over 17 soil borings and/or monitoring wells have been installed. The groundwater has been sampled many times over a 15-year period by different consultants. Elevated levels of petroleum hydrocarbons have been detected in the subsurface groundwater at the site as documented in groundwater monitoring reports.

6.1 Alternative Remediation Technologies

Three in situ remedial alternatives (Natural Attenuation, Enhanced In situ Bioremediation by Oxygen Release Compound (ORC) and In situ Remediation by Chemical Oxidation), and their associated estimated costs are discussed in this CAP. Each of the three alternatives, are capable of achieving the site-specific cleanup goals for remediation of petroleum hydrocarbons present in soil and groundwater at the site. The three alternatives were selected because they are all technically feasible, cost effective, environmentally safe, and able to operate without interference with the day-to-day activities of an operating U-Haul facility.

6.1.1 Natural Attenuation

Natural attenuation (NA) is a naturally-occurring in situ process that includes biodegradation, dispersion, dilution, volatilization, absorption, hydrolysis, and other chemical reactions of contaminants with subsurface materials to reduce contaminant concentrations. Natural attenuation occurs to some extent at all sites. However, remediation by natural attenuation is effective only when these naturally occurring attenuation mechanisms can achieve remedial goals. Generally, depending on site conditions, remediation by natural attenuation may be considered as a long term remedial option. Consideration of this option usually requires fate and transport modeling and evaluation of contaminant degradation rates and pathways to predict contaminant concentration at the site, especially when contaminant plumes are continuously expanding or migrating. In addition, long term monitoring must be conducted throughout the process to confirm that the degradation is proceeding at rates consistent with meeting remedial goals.

The primary benefits of natural attenuation are (i) minimal disturbance at the site because the site is simply left to be remediated by natural processes, and (ii) low to non-existent operational costs because the process involves no human intervention. The costs associated with natural attenuation are typically related to long term monitoring natural attenuation parameters in groundwater to make sure that the process is continuing.

The main limitation of natural attenuation is that the process is slower than any other remediation methods. In addition, the most appropriate microorganisms may not be present and/or natural environmental conditions (i.e., oxygen, nutrients, pH condition, and temperature) may not be optimal to facilitate natural remediation of the contamination. Therefore, health risks from the contaminated site, that may not be acceptable from either a public health or business perspective, may exist for a period of time.

6.1.2 Enhanced In-Situ Bioremediation by Oxygen Release Compound

ORC is used as a slow release source of oxygen in the remediation of any contaminant that is aerobically degradable in soil and groundwater. ORC is a patented formula of a mixture of magnesium peroxide (MgO_2), magnesium oxide (MgO), and magnesium hydroxide ($\text{Mg}(\text{OH})_2$). Magnesium peroxide is converted into magnesium hydroxide, as oxygen is released. ORC can slowly release oxygen upon contact with water (at 3% moisture content). The ORC injection process enhances in situ intrinsic bioremediation through injection of ORC slurry into the petroleum hydrocarbon impacted groundwater (dissolved phase). The ORC-remediated oxygenated zones as a function of contaminant concentration can last from four months to over a year. The ORC process can increase the biodegradation rate ten times or more by adjusting the rate limiting factors. Diesel and MTBE are less biodegradable than gasoline and BTEX, but the successful applications of ORC on MTBE remediation have been reported by Regenesis, Inc. Diesel and MTBE may require longer time to cleanup than gasoline.

Since ORC is also an enhanced in-situ bioremediation method, the main limitation of this technology is similar to the bio-slurry injection that the ORC is not effective in remediating free product. In addition, it requires large quantity of ORC material to treat the source area with high petroleum hydrocarbons contamination.

6.1.3 In-Situ Remediation by Chemical Oxidation

In situ Chemical Oxidation with strong oxidants as ozone alone or combination of hydrogen peroxide is a remedial technology that reduces concentrations of hydrocarbons constituents (i.e., gasoline, diesel, BTEX, and fuel oxygenates) in petroleum products that are adsorbed to soils and dissolved in groundwater by oxidizing the petroleum hydrocarbons into mineralized products such as CO_2 , salts, and readily biodegradable organic fragments. The process also involves a production of a highly reactive hydroxyl radical, which is among the most powerful oxidizer available. Ozone/hydrogen peroxide can be used as an in situ chemical oxidant (penetrating both soil columns and bioflocs, eliminating the sludge-bulking phenomenon) through injections. It and its intermediate product (i.e., hydroxyl radical) degrade toxic, refractory or bio-inhibitory organics, rendering them more amenable to biodegradation. The process is easily applied and controlled. The treatment occurs rapidly, lasting from a few hours to weeks, depending on the plume size. The process produces no by-product waste streams, and can be tuned for the degree of contaminant removal desired.

6.2 Feasibility Analysis

The feasibility analysis of remedial alternatives is to evaluate the technical and cost effectiveness of the selected technologies. All three alternatives and site-specific remedial technologies are assessed against the evaluation criteria of technical effectiveness, implement capability, time, and cost required to complete each remedial technology. These remedial alternatives were developed that are capable of satisfying the cleanup goals that are established for the site, including mitigation of absorbed phase in soil and dissolved phase in groundwater associated with the subject site. The alternatives considered technological feasibility and reliability, process options, economic, and land-use impacts. The alternatives also considered the result of mitigating or minimizing damage to and providing adequate protection of human health and the environment.

6.3.1 Site Specific Baseline Parameters Evaluation

The contaminants of concern, lithologic and hydrologic site-specific data were evaluated to determine the effectiveness and applicability of the alternative remedial techniques at the site. Baseline parameters were collected from previous site-specific investigation and monitoring activities (soil borings and existing monitoring wells) at the site. Therefore, they provide site-specific, representative and valid input to the evaluation.

6.3.1.1 Contaminants of Concern Data Evaluation

Contaminants of Concern (COCs) at the site have been determined to be diesel, gasoline, BTEX, and MTBE. Site-specific data such as dissolved concentrations of COCs in groundwater and adsorbed concentrations in soils were reviewed and evaluated. Plume delineation data were reviewed to determine the status of the plume and estimate the hydrocarbons mass in soil and groundwater.

6.3.1.2 Lithologic and Hydrologic Conditions

Subsurface materials encountered during exploration at the site consisted of silty sands with some clay layers, consistent with an alluvial valley. Groundwater underlying the study area has been measured at a depth ranging from approximately 5 to 20 feet bgs. Based on the depth to groundwater measured in the groundwater monitoring wells at the site, the groundwater gradient at the site was estimated to be approximately 0.01 to 0.006 ft/ft. The hydraulic conductivity was estimated at 0.01 feet per day and effective porosity (specific yield) at 25 %. An average horizontal seepage velocity beneath the site is extremely low and was estimated at 0.14 feet/year.

6.3.2 Evaluation Criteria for Potential Remedial Alternatives

The detailed analysis of alternatives is designed to provide decision-makers with relevant information needed to adequately compare the alternatives and to select a site remedy. The criteria are established for overall protection of human health and the environment, short-term and long-term effectiveness, reduction of COCs, and the acceptance by the state and the community. To satisfy these objectives, each alternative was assessed against the three evaluation criteria of effectiveness, implement capability, and cost.

Effectiveness

The analysis of each alternative, with respect to overall protection of human health and the environment, provides a summary evaluation of how the alternative reduces the risk from potential exposure pathways through treatment or engineering actions.

Effectiveness (long-term and short-term) and performance are evaluated with respect to the magnitude of residual risk and the adequacy and reliability of controls used to manage any

remaining contamination. Alternatives that offer the highest degree of effectiveness and performance are those that would leave little or no contamination remaining at the site. Such alternatives would render long-term maintenance and monitoring unnecessary and would minimize reliance on institutional controls.

The anticipated performance of treatment technologies employed as part of a remedial action are analyzed with emphasis on the amount of hazardous materials to be treated or destroyed; the expected reduction in toxicity, mobility, and volume; the degree to which treatment is irreversible; and the type and quantity of residuals expected from the treatment process.

Implementation

The analysis of implementation accounts for the technical and administrative feasibility of implementing the alternatives, as well as the availability of necessary resources. The criterion involves the analysis of a number of factors, including construction, operation, and reliability of remedial technologies; the ability to monitor overall performance and effectiveness of technologies; the ability to obtain necessary agency approvals/permits and coordinate access to private property; and the availability of treatment technologies, storage capacity, disposal services, equipment, and specialists.

Cost

Order-of-magnitude cost estimates were prepared based upon conceptual descriptions and information developed for each of the remedial alternatives. Capital and operation and maintenance costs were estimated using the RS Means Environmental Remediation Cost Data-Assemblies and obtained from the technology providers.

Capital costs include those expenditures required to implement a remedial action. Both direct and indirect costs were considered in developing the capital cost estimates. Direct costs include construction costs or expenditures for equipment, labor, disposal of materials, and purchase or rental of materials required implementing the remedial action. Indirect costs include those associated with engineering, permitting, construction management, and other services necessary to carry out the remedial action.

Annual O & M costs were also estimated. These costs, which may be incurred even after the initial remedial activity is complete, include:

- labor costs for post-remediation O & M of facilities and equipment
- power, materials such as chemicals for treatment technologies,
- water and sewer services, and
- services such as sampling, laboratory analysis, or professional fees

Equipment replacement, administrative costs, and contingency funds for any unanticipated O & M costs are not included. All equipment specified should last for the duration of the remediation. However, if there is reasonable expectation that a major component of a remedy will fail and

consequently require replacement over time to prevent significant exposure to contaminants, then the cost of replacement would also be considered. The capital and O & M costs for each alternative was then used as a basis for comparison.

6.3.2.1 Alternative 1 – Natural Attenuation

To determine if this site is a candidate for natural attenuation, site assessment data were evaluated against the criteria outlined in the “Interim Guidance of Required Cleanup at Low-Risk Fuel Contaminated Sites” April 1, 1996. Because groundwater was impacted by petroleum product, the site assessment data were evaluated against the “Low Risk Groundwater Case” criteria. The criteria are listed below, followed by an evaluation of site data as they relate to the criteria.

Low-Risk Groundwater-Case Criteria

- 1) *Groundwater was impacted, the leak was terminated and ongoing sources, including free product were removed or remediated to the extent practicable.*
Existing groundwater contamination is primarily attributed to past pipeline leaks. Free product was observed in site monitoring wells since 1991, and was removed on several occasions over 100 gallons.
- 2) *The site has been adequately characterized (see Low Risk Soil Case Definition #2).*
The gasoline, diesel, and MTBE plumes were adequately delineated. The plume in groundwater at the site is currently centered in the area of the monitoring wells MW-2, J-01, MW-101, MW-103, and MW-301 around the former gasoline and diesel USTs. The plume is not migrating off-site.
- 3) *The site is located in a Basin without designated Municipal/Domestic beneficial use.*
Groundwater basin in this area is Santa Rosa Valley, which has existing beneficial uses as domestic supply.
- 4) *The site is located in a Basin with Municipal/Domestic beneficial use (outside of a sensitive aquifer boundary).*
See 3 above. The Department of Water Resource has designated this aquifer as a “sensitive aquifer.”
- 5) *The dissolved hydrocarbon plume is not migrating.*
See 2 above.
- 6) *No water wells, deeper drinking water aquifers, surface water, or other sensitive receptors are likely to be impacted.*
Not likely.
- 7) *The site presents no significant risk to human health.*
The site is completely covered with asphalt or concrete. Although a human health risk assessment has not been conducted for the site, it is not believed that the site poses a human health risk to the average user at the site.

- 8) *The site presents no significant risk to the environment.*
See 6) and 7) above.

However, the subject site does not currently meet the low risk groundwater criteria for the site. Therefore, the site is not currently a candidate for a whole site remediation through natural attenuation. However, evaluation of natural attenuation is useful because it provides a baseline for future evaluation of the site for closure. It is presumed that at some point in the future, after required cleanup action is undertaken at the site, natural attenuation for residual product remaining in soil and/or groundwater can be a valuable alternative, to reduce total cost of remediation at this site.

6.3.2.2 Alternative 2 - Enhanced In-Situ Bioremediation by ORC

The ORC injection process enhances in situ intrinsic bioremediation and natural attenuation through injection of oxygen release compound slurry into the petroleum hydrocarbon impacted soil and groundwater. The macronutrients can be injected during the ORC injection process. The key factors to evaluate the technical effectiveness are soil type and hydraulic conductivity, COC characteristics, and the biodegradability of petroleum contaminants. As a biological-chemical treatment process, the key factors to evaluate the technical effectiveness of AS/H₂O₂ are the hydrogeological conditions, soil structure and permeability, biodegradability of COCs, and the physical chemical properties of the COCs (i.e., Henry's law constant, vapor pressure, boiling point, and water solubility).

Depth to groundwater is from 5 to 20 feet bgs. Most physical chemical indicators (i.e., Henry's law constant, vapor pressure, boiling point, and water solubility) indicate that the removal of diesel, gasoline and BTEX is technically effective and applicable by the ORC process. During the enhanced in situ bioremediation process, the site conditions need to be routinely monitored. If the rebound affect (increased dissolved COCs which are released from the contaminated soil) and low electron acceptor concentrations occur, the remedial system can be adjusted by additional ORC injections.

ORC is a virtually insoluble product and will not harm the aquifer. However, a waste discharge permit is required before the installation. The implementation of the ORC process is not complex. It requires the one time or multiple injection(s) of ORC slurry into the soil. Direct injection of the ORC slurry through the probe holes into the contaminated saturate zone by Geoprobe injection equipment would be used. The ORC slurry will be applied through injection points at the specified source treatment grid locations. This method requires fewer probe holes, is less disruptive to the site, and aids the spread of oxygen by spreading the ORC material. No operation and maintenance is required. The duration for the ORC injection is then projected for 2 years. Groundwater monitoring is projected to last one and a half years until the cleanup goals are achieved.

The ORC system should have a medium degree of technical effectiveness and medium to high degree of implementation.

ORC Design Parameters

A conservative estimate of the dissolved oxygen to loaded hydrocarbon mass stoichiometry of 3:1 is employed. Based on the plume dimensions and average concentration of the dissolved fuel hydrocarbon plume in the soil and groundwater and the estimated porosity of the saturated soils, the estimated total mass of 796 lbs of fuel hydrocarbons was estimated to be adsorbed in soil and dissolved in the groundwater. Based on these factors the amount of oxygen required to metabolize the fuel hydrocarbons was calculated using the following equation:

$$\text{Loaded Hydrocarbon Mass (lbs)} = (796 \text{ lbs HC Mass})$$

$$\begin{aligned} \text{Amount of Oxygen required (lbs)} &= \left(\frac{3 \text{ lbs Oxygen}}{1 \text{ lb HC}} \right) \times \text{Loaded HC Mass (lbs)} \\ &= 2388 \text{ (lbs)} \end{aligned}$$

Where HC = fuel hydrocarbon mass, DF = additional oxygen demand factor

Loaded Hydrocarbon Mass is a value equal to the dissolved hydrocarbon mass and the additional oxygen demand factor representative of an equivalent hydrocarbon mass which will require oxygen on a 3 : 1 mass basis.

The amount of ORC required is equal to the amount of oxygen required per site and the weight percentage oxygen that can be released by ORC. The Regenesi ORC application/design software was used to determine mass of the hydrocarbons, loaded mass of the hydrocarbons, oxygen and ORC required, and a number, spacing and orientation of injection points within treatment/application grids. The amount of oxygen released by ORC is 10% by weight of ORC, and the maximum dissolved oxygen saturation generated by ORC in water is about 40 to 50 mg/L. The amount of ORC required was calculated using the following equation:

$$\begin{aligned} \text{Amount of ORC required (lbs)} &= \frac{(2388 \text{ lbs Amount of Oxygen required})}{(10\% \text{ by Weight, Oxygen in ORC})} \\ &= 23880 \text{ (lbs)} \end{aligned}$$

6.3.2.3 Alternative 3 – In situ Chemical Oxidation

The in situ chemical oxidation is an advanced oxidation process that uses ozone alone or a combination of hydrogen peroxide to destroy organic compounds. MTBE and diesel are the compounds that were difficult to be treated by most traditional techniques (i.e., slow in biodegradation or air sparging). However, through in situ chemical oxidation, both can be treated relatively easily. A waste discharge permit for the injection would not be required if hydrogen peroxide is not added for the remediation. Equipment for the system can be easily purchased from the manufacturer and deployed to the site. The installation of the system is not complex. It requires the initial treatment system installation. Minimum operation and maintenance is required. The in situ chemical oxidation should have a high degree of technical effectiveness, and medium to high degree of implementation.

Oxygen Demand Calculations

The amount of oxygen required per site is equal to the amount that can be released by ozone and the oxygen that was sparging by air blower. In general, a Pulse-OX unit will supplied 4 lbs/day of ozone in 1.25 years.

$$\text{The time of ozone supplied (lbs)} = 4 \times 365 \times 1.25 = 1825 \text{ lbs.}$$

The amount of oxygen supplied by air blower was calculated using the following equation:

$$\begin{aligned} \text{The rate of oxygen injected in each well (lb/day)} \\ &= 0.0175 \text{ lb/ft}^3 \text{ (oxygen in air)} \times 3.7 \text{ ft}^3/\text{min (injection air flow)} \\ &= 93 \text{ lb/day} \end{aligned}$$

The rate of oxygen dissolved into the plume through air injection in each well is about 2% of the injected oxygen amount, which is 1.86 lb/day. The oxygen supplied through the air blower for 1.25 years will be 848 lbs.

$$\begin{aligned} \text{The total amount supplied by ozone and air (lb)} \\ &= 1825 + 848 = 2676 \text{ lbs} > 2388 \text{ lbs (required)} \end{aligned}$$

6.3.3 Treatment Duration

Treatment duration is the time period that the remedial technology was operated to achieve the site-specific clean up goals. According to the historical analytical data, using the Colorado Department of Labor and Employment Division of Oil and Public Safety guidance document, “*Monitored Natural Attenuation in Groundwater Guidance Document*, June 2002”, the natural attenuation estimated duration for cleanup is calculated as approximately fifteen years on this site. Using Regenesys, Inc. provided software and the ORC material, the enhanced bioremediation with ORC injection system should have a medium duration cleanup of approximately 2 years on this site; however, multiple injections will be required during the 2-year period. Using the Pulse OX-100 chemical oxidation system provided by Applied Process Technology, Inc., the duration of in situ by chemical oxidation should have a medium duration cleanup of approximately one to 1.5 years.

6.3.4 Cost Analysis

The estimated total cost of Alternative 1 – Natural Attenuation, is \$300,000. This alternative includes semiannual groundwater monitoring for 15 years until the groundwater quality reaches the site cleanup levels.

Capital Cost	\$0
Operation and Maintenance Cost	\$0
(present worth)	

Monitoring Cost	\$300,000
Total Present-Worth Cost:	\$300,000
Treatment Duration:	15 years

The estimated total cost of Alternative 2 – Enhanced Bioremediation with ORC Injection, assuming 2 years of operation including four quarterly and two semiannual groundwater monitoring events for 2 years, is \$ 385,000.

Capital Cost	\$340,000
Operation and Maintenance Cost (current worth)	\$0
Monitoring Cost	\$36,000
Permitting	\$5,000
Total Present-Worth Cost:	\$381,000
Treatment Duration:	2 years

The estimated total cost of Alternative 7 – In situ Chemical Oxidation, assuming 1.5 years of operation including six quarterly groundwater monitoring events for 1.5 years, is \$ 199,000.

Capital Cost	\$145,000
Operation and Maintenance Cost: (current worth)	\$18,000
Monitoring Cost	\$36,000
Permitting	\$0
Total Present-Worth Cost:	\$199,000
Treatment Duration:	1.5 years

7.0 PILOT STUDY IMPLEMENTATION AND EVALUATION

On May 18, 2005, a Pulse OX-100 chemical oxidation system (Applied Process Technology, Inc., Pleasant Hill, CA) was installed at the site. The objectives of the pilot study are: 1) evaluate the effectiveness of chemical oxidation by ozone alone, and 2) confirm removal of hydrocarbons in groundwater, and 3) evaluate the radius of influence of the ozone sparging process.

The remedial system included an ozone generator, a compressed air subsystem to provide pressured air, and a programmable logic controller to control the operation and distribution of the ozone delivery system. The size of the Pulse OX-100 system is approximately 3 feet (width) x 3 feet (length) x 4 feet (height). The ozone gas (adjustable to maximum of 2 lbs/day) was generated by the system. Two ozone sparging wells (i.e., RW-1 and RM-2) were installed at the site during the pilot study. Manifold system was used to deliver ozone to the two ozone sparging wells. The system was run for approximately 671 hours at the site.

During the pilot study, ozone was delivered through the closed above ground ozone compatible delivery Teflon piping system to the ozone sparging wells via a stainless steel diffuser point. The ozone pressure at the ozone diffuser point is approximately equal to 9 to 10 psi. A total of 14 lbs of ozone was injected into each well during the course of the pilot study. The ozone generation and delivery system was fully automated and was operated continuously for the duration of the pilot study with minimal operator assistance required. In addition, the O&M technician made weekly and biweekly site visits during the pilot study. During each site visit, the chemical oxidation system was checked for proper operation. Each operating point was accessed and inspected for leaks, verification of flow, and piping integrity. The system's safety features include an ozone detector and a check valve to shut down the system, if needed.

7.1 Drilling and Installation of Remediation Wells

Two ozone sparging wells (RW-1 and RW-2) were drilled on site close to monitoring wells MW-2 and J-01, using a truck-mounted drill rig equipped with hollow-stem auger. A well permit was obtained from the County of Sonoma Department of Environmental Health (DEH) prior to drilling. All drilling activities were performed in accordance with the conditions of the approved well permit under the supervision of a registered civil engineer. A soil sample was collected in a stainless steel sleeve at RW-2 at the depth of 15 to 18 feet bgs at submitted to the laboratory for bench scale study, which will be discussed in Section 7.3. In order to monitor the radius of influence of the ozone system, all infiltration wells were deployed at a distance of three to twenty feet away from a monitoring well. The well locations are indicated on Figure 7.

Ozone sparging well installation, and construction was performed in accordance with the conditions of the approved well permit. The 8 inches diameters borehole was advanced into the aquifer through the source area to a depth of 21 feet bgs. After drilling tools are retrieved from the borehole, a twenty feet lengths of stainless steel riser pipe was threaded onto the ¾" terminal fittings of the 3-foot long pre-fabricated stainless steel Max-Ox sparging point. The Max-Ox point was installed into the borehole and set approximately 1.0 foot off bottom of borehole. Fill the annular space around the ozone screen with #2 1/12 sand filter pack to a minimum of 1.0 foot above the top of the screen. Add a 2-foot layer of bentonite to the annular space above the top of

the ozone screen sandpack. Neat cement was then used to fill the space between the well case and the stainless steel diffuser points to prevent leakage. Grout the remaining annular space around the stainless steel riser pipe to the surface with neat cement. The well was finished at the ground surface with threaded caps on each riser pipe. The riser pipes were vertically offset 6 inches to accommodate final wellhead piping. The well was finished with an access vault. All well heads were secured to prevent ozone leakage.

The ozone infiltration system was plumbed accordingly and all mechanical devices (motors, interlocks, and level sensors) and was wired to a local control panel and breaker box. The air/ozone sparging point was connected to the system via Teflon delivery above piping network. The Teflon pipe was placed inside a 1-inch iron conduit and the piping system was placed inside a 2-inch deep by 2-inch wide trench. The trench was then packed with cold asphalt to the ground surface.

7.2 Pilot Study Performance Monitoring

During the pilot study process, the groundwater monitoring activities were performed on monitoring wells MW-2, J-01, and MW-103 to monitor the progress of the pilot study. The frequency of the groundwater sampling was biweekly. Groundwater sampling activities were performed at the beginning, the middle and the end of the pilot study.

The static water level in each monitoring well was measured with a water level meter. Each well was inspected for the presence of free-phase product using a clear disposable bailer. Following depth to groundwater measurements, monitoring wells will be purged using a submersible pump. Three borehole volumes of groundwater was purged from each well. The parameters of pH, temperature, conductivity, turbidity, and dissolved oxygen in the groundwater were monitored with a water quality meter during the purging and sampling activities. A copy of the groundwater monitoring log is included in Appendix A. After the wells recharge to at least 80% of the static water level, water samples were collected using dedicated disposable bailers with a bottom-emptying device. The groundwater samples were transferred to appropriate laboratory-supplied containers, properly labeled, and placed in a cooler maintained at $4\pm 2^{\circ}$ C for transport to the analytical laboratory.

7.3 Bench Scale Study of Chemical Oxidation by Ozone and Hydrogen Peroxide

The chemical oxidation bench scale study was performed by PRIMA Environmental laboratory of Sacramento, California. The field soil sample collected from the subject site was submitted to the laboratory. Several bench testing were conducted on the sample. The objectives of the bench study are: 1) evaluate the effectiveness of chemical oxidation by ozone alone, and a combination of ozone and hydrogen peroxide, and 2) confirm removal of hydrocarbons in soil and liquid phases. A copy of the bench study report is included in Appendix B.

To determine whether ozone and ozone/hydrogen peroxide could remove petroleum hydrocarbons in soil and water, three batch tests were conducted as follows: 1) control; 2) ozone alone; and 3) ozone and hydrogen peroxide. The treatment duration was six hours. At the end of the test, the soil and water phases were separated via centrifugation and each analyzed for TPH-g, TPH-d, and COD. Compared to the control test, TPH-d was completely removed from the ozone

test, and 40 percent from the ozone/hydrogen peroxide test, suggesting that ozone is effective in removal of diesel; also, ozone is slightly more effective than ozone/hydrogen peroxide. However, it should be noted that the diesel concentration in the soil sample was relatively low. The differences in COD results are probable due to natural variation with the soil, rather to an effect of treatment.

Hydrocarbon Removal by Chemical Oxidation Batch Testing

Analyte	Units	Concentration in Soil			Concentration in Aqueous		
		Control	Ozone	Ozone/Hydrogen Peroxide	Control	Ozone	Ozone/Hydrogen Peroxide
COD	mg/L	3300	3600	3000	NA	NA	NA
TPH-d	mg/L	1	<1	<1	0.25	<0.1	0.15
TPH-g	mg/L	<3	<3	<3	<0.05	<0.05	<0.05

7.4 Pilot Study Evaluation

Evaluating of the groundwater monitoring data collected during the pilot study (Table 4 and Figure 9), it indicates that the PulseOx -100 system removed approximately 20 percent of the TPH-g, and 57 percent of the BTEX in the well. In addition, the COD was reduced approximately 32 percent and dissolved oxygen were increased. Chemical reduction was seen in monitoring well MW-2 from mid-trial to end of the trial; however, levels of TPH-g and TPH-d increased above the November 2004 monitoring data. Increased levels of COC are often seen in monitoring wells that are in areas where either free product remains in the soil, or there are high amounts of contamination in the soil and capillary fringe. The agitation of the soil during ozone sparging can removed adsorbed phase hydrocarbons, increasing the level of dissolved phase contamination. Over time, the gasoline contaminants will decrease with increased application of oxidant. Due to the distance of well MW-103 from the ozone sparging wells (over 60 feet), a slightly decrease in TPH-g and TPH-d was seen in MW-103. However, there was no apparent decrease in BTEX.

In addition, impact of chemical oxidation was seen in well MW-301, with the TPH-g concentration decreased approximately 79 percent and TPH-d decreased to non-detected from 340 ug/L in December 2004 to June 2005. It indicated that the radius of influence of ozone sparging is more than 20 feet.

Also, of note was the 20 fold increase in heterotrophic bacteria after injection of ozone and air during the pilot study. This would be considered a positive sign that ozone injection is enhancing in situ biodegradation and the biological reduction of COCs at this site.

Based on the pilot study and bench testing results, the chemical oxidations by ozone alone and combination of ozone and hydrogen peroxide are both effective in removing hydrocarbons in soil and groundwater. However, the ozone alone showed more positive data than the combination of hydrogen peroxide. Since injection of hydrogen peroxide may require site-specific waste discharge permit, additional sparging points, and additional material and O&M cost. The pilot

study finding is useful in selecting the field implementation, which is in situ chemical oxidation by ozone alone.

7.5 Laboratory Analysis

The soil and groundwater samples collected during our pilot study were submitted to a state certified laboratory in good conditions with appropriate chain-of-custody documentation. The following constituents were analyzed on all groundwater samples:

- Total Petroleum Hydrocarbons (TPH) gasoline and diesel range by EPA method 8015 (modified),
- Volatile organic compounds including benzene, toluene, ethylbenzene, and xylenes (BTEX), fuel oxygenate methyl tertiary butyl ether (MTBE) by EPA method 8260B.

In addition, other groundwater parameters including chemical oxygen demand, biochemical oxygen demand, and total heterotrophic plate count were monitored during the pilot study process.

The following constituents were analyzed on soil samples:

- Total Petroleum Hydrocarbons (TPH) gasoline and diesel range by EPA method 8015 (modified).

In addition, other soil parameters including TCLP gasoline and diesel, chemical oxygen demand were analyzed for the soil collected for the bench study. A copy of the laboratory report is included in Appendix C.

7.6 Investigation-Derived Waste

All soil cuttings generated during the pilot study activities, including water generated from decontamination procedures, were stored in 55-gallon DOT-approved drums. All drums were sealed, properly labeled, and stored at the site. All stored soil was characterized and subsequently was disposed offsite by a state-licensed waste-disposal company. The waste-disposal company properly manifested (non-hazardous-waste-disposal manifests) and disposed the IDW at a state-approved waste disposal facility.

The wastewater generated during the groundwater monitoring event, including water generated from decontamination procedures and purging, were stored in a 1000-gallon baker tank. The tank was sealed, properly labeled, and stored at the site. For wastewater disposal, a formal request for a one-time discharge permit was submitted to Mr. Chris Murray, the Industrial Waste Inspector of the City of Santa Rosa Utilities Department. A representative water quality analysis was submitted to the City of Santa Rosa Utilities Department and confirmed that the groundwater met discharge requirements. The approximately 1000 gallons groundwater was discharged to the sewer inlet located at the facility. The discharge was performed under the supervision of Industrial Waste Inspector from the City of Santa Rosa Utilities Department.

8.0 PROPOSED REMEDIAL APPROACH

Based on the evaluation of the technical effectiveness of the three remedial alternatives, it is assumed that each alternative will eventually meet the site clean up goals. However, the most cost-effective alternative will be selected as the proposed remedial approach. The summary of the selected remedial alternatives is included in Table 5.

Based on the comparative evaluation of the three Remedial Alternatives, alternative 3) in situ Chemical oxidation using ozone at a total estimated cost of \$199,000, is the most cost-effective method of achieving the source reduction. In addition, the pilot study data confirmed that the in situ chemical oxidation is feasible and applicable for the subject site. To cleanup the site, the total duration of the in situ chemical oxidation by ozonation alone will be one year to 1.5 years.

Based on the evaluation of the current site condition data, the pilot study data, and the radius of influence of ozone sparging, in addition to existing ozone sparging wells RW-1 and RW-2, six ozone sparging wells (i.e., RW-3 through RW-8) will be installed in the area of the monitoring wells MW-2, J-01, MW-101, MW-103, and MW-301 around the former gasoline and diesel USTs. Ozone sparging wells RW-1 through RW-7 are targeted to treat the source area. RW-8 is located downgradient of the remediation area, if any off site migration of the dissolved plume is reported, ozone will be injected into the well RW-7 to stop possible off site migration of the dissolved plume. The proposed well locations are indicated in Figure 10. The ozone sparging wells and the system installation procedures will follow the same procedures used during the pilot study. The performance monitoring program will be discussed in Section 9.0.

9.0 PERFORMANCE MONITORING PROGRAM

The performance monitoring program will be established to evaluate the effectiveness of the enhanced intrinsic bioremediation and natural attenuation processes in mitigating the petroleum-impacted soil and groundwater at the site. During performance monitoring, the concentration distributions of the indicator parameters will be evaluated for patterns and/or general trends relative to the concentration of the gasoline and diesel-ranged petroleum hydrocarbons within the dissolved plume(s) in groundwater beneath the site.

Furthermore, the treatment monitoring process will be designed to quantify the degradation rates of the dissolved petroleum hydrocarbons in groundwater beneath the site. The performance monitoring will be performed quarterly for the first year, and semi-annually for the second year, if necessary.

The following sub-sections provide a description of geochemical indicators of remediation processes, methodology and components of the post-application performance monitoring program. Selected geochemical indicators will be monitored during the morning events. The selection of geochemical indicators to be monitored will be adjusted at each monitoring event, as appropriate, based on previous groundwater monitoring results.

9.1 Contaminant Concentration Reduction

During the post-application performance monitoring, COCs, and groundwater data within the plume will be collected from seven groundwater monitoring wells (i.e., MW-2, J-01, MW-301, MW-101, MW-103, UH-P1, and MW-102) quarterly and analyzed for TPH-d, TPH-g, BTEX, and MTBE.

The remedial process performance monitoring data will be evaluated and the COC concentrations will be compared to the site-specific closure clean-up levels. Contaminant concentration reduction trends will be evaluated and COC mass removal rate(s) will be estimated. These analyses will be used to monitor the effectiveness of the remediation process in mitigating petroleum-hydrocarbon contaminated groundwater beneath the site, and to modify or enhance the remedial processes, if needed, and to determine termination of the remedial process, if the cleanup goal has been achieved.

9.2 Geochemical Indicators of Remediation and Monitoring

During the post-application performance monitoring, selected site-specific geochemical (microbiological and respirometry) data will also be collected and evaluated from five groundwater monitoring wells (i.e., MW-2, J-01, MW-301, MW-101, and MW-103) quarterly. The collected and evaluated performance monitoring data (indicator parameters) could include biochemical oxygen demand, chemical oxygen demand, dissolved oxygen, pH, temperature, conductivity, and microbial enumeration's (i.e., heterotrophic plate count).

9.3 Monitoring Program Documentation and Reporting

Quarterly groundwater monitoring reports will be prepared to document the results of field performance monitoring activities and the progress towards mitigation of petroleum hydrocarbons at the site. All field notes will be available for inspections for the regulatory agencies and client.

9.4 Remedial Action Plan Implementation Schedule

A preliminary remedial action implementation schedule is presented in Figure 11. The schedule presents the remedial approach activities/tasks and associated time frames for implementation. The proposed schedule may vary depending on client and regulatory agency review, and may also be dependent on future site development activities.

10.0 LIMITATIONS

During the preparation of this CAP, we attempted to review as much data as possible pertaining to the site in a tight schedule. This report presents opinions pertaining to the subject site, which are based, in part, on the assumption that the subsurface conditions do not deviate appreciably from those disclosed by the observed field conditions. The possibility that conditions are otherwise cannot be discounted.

The environmental remediation services described herein consist of professional opinions and recommendations made in accordance with generally accepted geotechnical and geological engineering principles and practices and based on our evaluation of the technical information gathered for and our general observations of conditions prevalent at the subject site. SOTA Environmental Technology, Inc. does not otherwise provide any implied or expressed guarantees regarding the characteristics or conditions of environmental media at the subject site and the performance of the project in any respect.

Table 1
Historical Summary of Soil Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Boring No.	Sample Date	Sample Depth (feet)	TPH-G (mg/kg)	TPH-D (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl Benzene (mg/kg)	Xylene (mg/kg)	Organic Lead (mg/kg)	MTBE (mg/kg)	EDB* (mg/kg)	TRPH (mg/kg)	1, 2 - DCA** (mg/kg)
B-101	2/4/1992	15	ND	ND	0.035	0.018	0.007	0.026	NA	NA	NA	NA	NA
	8/18/1992	18	NA	NA	>20	NA	NA	NA	NA	NA	NA	NA	NA
	2/4/1992	20	19	7.4	1.20	1.50	0.32	1.20	NA	NA	NA	NA	NA
B-102	2/4/1992	15	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
	8/18/1992	22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
B-103	8/18/1992	15	NA	NA	>10	NA	NA	NA	NA	NA	NA	NA	NA
	2/4/1992	15	ND	ND	0.015	ND	0.006	0.003	NA	NA	NA	NA	NA
B-104	2/4/1992	20	16	1.40	2.00	3.00	0.26	1.30	NA	NA	NA	NA	NA
	8/18/1992	15	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA
B-105	2/4/1992	20	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
	8/18/1992	18	NA	NA	<10	NA	NA	NA	NA	NA	NA	NA	NA
	2/4/1992	10	48	5	0.032	ND	ND	0.21	NA	NA	NA	NA	NA
B-201	8/18/1992	18	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
B-202	8/18/1992	20	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
B-203	8/18/1992	25	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
B-204	8/18/1992	30	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
B-205	8/18/1992	21	ND	ND	0.03	0.044	0.017	0.036	NA	NA	NA	NA	NA
B-206	8/18/1992	15	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
B-1	9/18/1990	15	4000	24	ND	60	35	250	NA	NA	NA	NA	NA
B-2	9/18/1990	5	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
B-3	9/18/1990	15	2.2	ND	0.035	0.047	ND	0.026	NA	NA	NA	NA	NA
B-4	9/18/1990	15	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
MW-1	9/18/1990	10	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
	9/18/1990	20	3.2	ND	0.067	ND	ND	ND	NA	NA	NA	NA	NA
MW-2	9/18/1990	15	15	16	0.053	0.11	0.023	0.13	NA	NA	NA	NA	NA
	9/18/1990	20	1.7	ND	0.95	0.30	0.21	0.96	NA	NA	NA	NA	NA
MW-101	2/4/1992	15	ND	ND	0.066	0.006	ND	0.016	NA	NA	NA	NA	NA
	2/4/1992	25	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
MW-102	2/4/1992	15	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
	2/4/1992	20	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
MW-103	2/4/1992	15	1200	160	13	49	18	84	NA	NA	NA	NA	NA
MW-104	2/4/1992	15	ND	1.4	0.006	0.003	ND	ND	NA	NA	NA	NA	NA

Table 1
Historical Summary of Soil Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Boring No.	Sample Date	Sample Depth (feet)	TPH-G (mg/kg)	TPH-D (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl Benzene (mg/kg)	Xylene (mg/kg)	Organic Lead (mg/kg)	MTBE (mg/kg)	EDB* (mg/kg)	TRPH (mg/kg)	1, 2 - DCA** (mg/kg)
MW-201	8/18/1992	25	0.06	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
MW-202	8/18/1992	15	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
MW-203	8/18/1992	25	ND	ND	ND	ND	ND	ND	NA	NA	NA	NA	NA
Waste Oil Overexcavation													
North	01/88	8.5	NA	NA	ND	ND	7	57	NA	NA	NA	62	NA
East	01/88	9	NA	NA	ND	ND	ND	ND	NA	NA	NA	70	NA
West	01/88	10	NA	NA	ND	ND	ND	19	NA	NA	NA	11	NA
Diesel UST Overexcavation													
TP-2-1	09/93	13	NA	3,800	1	12.50	6	34.5	NA	NA	NA	NA	NA
TP-2-2	09/93	16	NA	5,000	2	16.50	8	12.5	NA	NA	NA	NA	NA
TP-2-3	09/93	17.5	NA	2,090	2.8	9.90	2.4	18	NA	NA	NA	NA	NA
TP-2-4	09/93	16.5	NA	2,850	1.52	6.30	4.6	20.3	NA	NA	NA	NA	NA
Gasoline UST Overexcavation													
TP-1-1	09/93	13	72	NA	3.2	8.1	0.9	21	NA	NA	NA	NA	NA
TP-1-2	09/93	17	10.3	NA	0.2	3.5	1.95	8.5	NA	NA	NA	NA	NA
TP-1-3	09/93	17	120	NA	2.75	6.75	19	83	NA	NA	NA	NA	NA
TP-1-4	09/93	16.5	0.78	NA	0.03	0.1	0.03	0.17	NA	NA	NA	NA	NA
TP-1-5	09/93	18	9.8	NA	0.18	3	1.7	7.3	NA	NA	NA	NA	NA
TP-1-6	09/93	18	12	NA	0.23	4.1	2.15	9.1	NA	NA	NA	NA	NA
TP-1-7	09/93	18	33	NA	2.8	7.5	0.9	18.1	NA	NA	NA	NA	NA
Pump Island Overexcavation													
TP-3-1	09/93	4.5	<500	2020	0.1	0.4	2.9	13.1	NA	NA	NA	NA	NA

Notes:

ND-non detect

NA-not analyzed

* 1, 2 - Dibromomethane (EDB)

** 1, 2 - Dichloroethane (1, 2 - DCA)

Table 1 (Cont.)
Historical Summary of Soil Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Sample	Date Sampling	TPH-g (mg/kg)	TPH-d (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)
SOTA-1										
5 feet	02/27/02	ND<1	ND<5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
10 feet	02/27/02	ND<1	ND<5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
15 feet	02/27/02	2,100	370	ND<120	ND<120	ND<120	ND<120	ND<120	ND<120	ND<120
20 feet	02/27/02	580	160	ND<50	74	ND<50	130	ND<50	ND<50	ND<50
SOTA-2										
5 feet	02/27/02	ND<1	ND<5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
10 feet	02/27/02	1.1	ND<5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
15 feet	02/27/02	14	9.8	ND<2	ND<2	ND<2	5.1	ND<2	ND<2	ND<2
20 feet	02/27/02	270	53	ND<12	ND<12	ND<12	ND<12	ND<12	ND<12	ND<12
25 feet	02/27/02	ND<1	ND<5	0.017	ND<5	0.023	0.160	0.049	ND<0.005	ND<0.005
SOTA-3										
2 feet	02/27/02	ND<1	ND<5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
5 feet	02/27/02	ND<1	ND<5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
8 feet	02/27/02	ND<1	ND<5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005
11 feet	02/27/02	ND<1	ND<5	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005	ND<0.005

Table 1 (Cont.)
Historical Summary of Soil Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Sample	Date Sampling	TPH-g (mg/kg)	TPH-d (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Xylenes (mg/kg)	MTBE (mg/kg)	EDB (mg/kg)	1,2-DCA (mg/kg)
MW-401										
5 feet	11/06/03	ND<1.7	ND<5	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044
10 feet	11/06/03	ND<1.8	ND<5	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046
15 feet	11/06/03	ND<2.0	ND<5	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044
20 feet	11/06/03	ND<1.8	ND<5	ND<0.0048	ND<0.0048	ND<0.0048	ND<0.0048	ND<0.0048	ND<0.0048	ND<0.0048
25 feet	11/06/03	ND<1.7	ND<5	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042
MW-402										
5 feet	11/06/03	ND<1.7	ND<5	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042	ND<0.0042
10 feet	11/06/03	ND<2.0	ND<5	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046
15 feet	11/06/03	ND<1.8	ND<5	ND<0.0049	ND<0.0049	ND<0.0049	ND<0.0049	ND<0.0049	ND<0.0049	ND<0.0049
20 feet	11/06/03	ND<1.8	ND<5	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044	ND<0.0044
25 feet	11/06/03	ND<1.8	ND<5	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046	ND<0.0046
30 feet	11/06/03	ND<1.7	ND<5	0.026	ND<0.0043	ND<0.0043	ND<0.0043	ND<0.0043	ND<0.0043	ND<0.0043
PRG		NA	NA	0.65	520	230	210	17	NA	NA
SSL		100	1,000	NA	NA	NA	NA	NA	NA	NA

Notes:

ND: Not detected

NA: Not available

Table 2
Historical Summary of Groundwater Elevation Data
-Santa Rosa U-Haul Center

WELL ID	TOC ELEVATION* (ft)	DATE MEASURED	PRODUCT THICKNESS**	DEPTH TO GROUNDWATER (ft)	GROUNDWATER ELEVATION (ft)
MW-1	99.10	07/26/91	0	17.28	81.82
		10/25/91	0	19.37	79.73
		01/21/92	0	18.89	80.21
	99.03	04/28/92	0	11.67	87.36
		07/21/92	0	15.52	83.51
		05/19/94	0	4.48	94.55
		10/19/94	0	17.80	81.23
		07/20/95	0	11.09	87.94
		04/17/96	0	5.81	93.22
		11/06/96	0	15.80	83.23
		05/13/99	0	7.16	91.87
		01/25/00	0	11.33	87.7
		07/10/00	0	11.27	87.76
		06/19/01	0	11.92	87.11
		02/28/02	0	6.01	93.02
		03/06/03	0	6.47	92.56
	103.77	11/16/04	0	11.91	91.86
		06/28/05	0	6.48	97.29
MW-2	98.54	07/26/91	2.18'	18.35	80.19
		10/25/91	3.2'	22.64	75.9
		01/21/92	0.02'	18.69	79.85
		04/28/92	SHEEN	11.30	87.24
		07/21/92	0.14'	15.64	82.9
		05/19/94	SHEEN	-	-
		10/19/94	SHEEN	17.36	81.18
		07/20/95	SHEEN	10.58	87.96
		04/17/96	0	5.60	92.94
		11/06/96	LIGHT SHEEN	15.35	83.19
		05/14/99	0	6.93	91.61
		01/24/00	0	10.85	87.69
		07/11/00	0	10.78	87.76
		06/19/01	SHEEN	11.34	87.20
		03/01/02	LIGHT SHEEN	5.90	92.64
		03/06/03	0	6.10	92.44
	103.28	11/16/04	0	11.35	91.93
		06/29/05	0	5.66	97.62
J-01	NS	07/26/91	NM	DRY	
		10/25/91	NM	NM	
		01/21/92	NM	NM	
		04/28/92	0	DRY	
		07/21/92	0	DRY	
		05/19/94	0	4.38	
		10/19/94	0	14.50	
		07/20/95	0	10.72	
		04/17/96	0	5.73	
		11/06/96	apprx. = 0.005'	14.50	
		05/13/99	0	6.85	
		01/25/00	0	10.80	
		07/11/00	0	10.88	
		06/19/01	0	11.32	
		03/01/02	0	5.92	

Table 2
Historical Summary of Groundwater Elevation Data
-Santa Rosa U-Haul Center

WELL ID	TOC ELEVATION* (ft)	DATE MEASURED	PRODUCT THICKNESS**	DEPTH TO GROUNDWATER (ft)	GROUNDWATER ELEVATION (ft)
J-01	NS	03/06/03	0	6.22	
	103.41	11/16/04	0	11.36	92.05
		06/29/05	0	6.14	97.27
UH-P1	98.71	07/26/91	0	16.98	81.73
		10/25/91	0	19.15	79.56
		01/21/92	0	18.39	80.32
	98.66	04/28/92	0	10.89	87.77
		07/21/92	0	15.29	83.37
		05/19/94	0	4.13	94.53
		07/20/95	0	10.42	88.24
		04/17/96	0	5.53	93.13
		05/13/99	0	6.84	91.82
		01/24/00	0	11.56	87.1
		07/10/00	0	10.7	87.96
		06/19/01	0	11.33	87.33
		03/01/02	0	5.99	92.67
		03/06/03	0	6.25	92.41
	103.42	11/16/04	0	11.75	91.67
		06/28/05	0	6.16	97.26
UH-P2	99.42	07/26/91	0	23.73	75.69
		10/25/91	0	26.93	72.49
		01/21/92	0	24.35	75.07
		04/28/92	0	16.31	83.11
		07/21/92	0	22.39	77.03
		05/19/94	0	7.98	91.44
		07/20/95	0	15.94	83.48
		04/17/96	0	9.20	90.22
		05/13/99	0	10.04	89.38
		01/25/00	0	15.70	83.72
		07/10/00	0	15.28	84.14
		06/19/01	0	16.18	83.24
		03/01/02	0	8.60	90.82
		03/06/03	0	8.32	91.10
	104.23	11/16/04	0	14.28	89.95
		06/28/05	0	7.43	96.80
MW-101	98.77	04/28/92	0	16.28	82.49
		07/21/92	0	22.39	76.38
		05/19/94	0	10.15	88.62
		10/19/94	0	24.02	74.75
		07/20/95	0	17.36	81.41
		04/17/96	0	11.54	87.23
		11/06/96	0	21.22	77.55
		05/13/99	0	13.13	85.64
		01/25/00	0	17.01	81.76
		07/11/00	0	18.39	80.38
		06/18/01	0	18.95	79.82
		03/01/02	0	10.76	88.01
		03/06/03	0	10.82	87.95
	103.52	11/16/04	0	17.97	85.55
		06/29/05	0	10.55	92.97

Table 2
Historical Summary of Grroundwater Elevation Data
-Santa Rosa U-Haul Center

WELL ID	TOC ELEVATION* (ft)	DATE MEASURED	PRODUCT THICKNESS**	DEPTH TO GROUNDWATER (ft)	GROUNDWATER ELEVATION (ft)
MW-102	99.05	04/28/92	0	11.15	87.9
		07/21/92	0	15.35	83.7
		05/19/94	0	4.40	94.65
		10/19/94	0	17.20	81.85
		07/20/95	0	10.66	88.39
		04/17/96	0	5.73	93.32
		11/06/96	0	15.50	83.55
		05/13/99	0	6.95	92.10
		01/25/00	0	10.81	88.24
		07/11/00	0	10.87	88.18
		06/18/01	0	11.38	87.67
		03/01/02	0	6.13	92.92
		03/06/03	0	6.42	92.63
	103.46	11/16/04	0	11.66	91.80
		06/28/05	0	6.31	97.15
MW-103	98.77	04/28/92	0	14.89	83.88
		07/21/92	0	21.88	76.89
		05/19/94	0	7.41	91.36
		10/19/94	0	23.54	75.23
		07/20/95	0	14.12	84.65
		04/17/96	0	7.50	91.27
		11/06/96	0	20.39	78.38
		05/13/99	0	6.73	92.04
		01/24/00	0	10.01	88.76
		07/10/00	0	10.48	88.29
		06/18/01	0	11.26	87.51
		02/28/02	0	5.62	93.15
		03/06/03	0	6.97	91.80
	103.02	11/16/04	0	9.88	93.14
		06/29/05	0	5.77	97.25
MW-104	99.05	04/28/92	0	11.23	87.82
		07/21/92	0	15.46	83.59
		05/19/94	0	4.53	94.52
		10/19/94	0	17.30	81.75
		07/20/95	0	10.79	88.26
		04/17/96	0	5.83	93.22
		11/06/96	0	15.55	83.50
		05/14/99	0	6.52	92.53
		01/25/00	0	10.73	88.32
		07/11/00	0	11.00	88.05
		06/18/01	0	11.52	87.53
		03/01/02	0	6.31	92.74
		03/06/03	0	6.49	92.56
	103.55	11/16/04	0	11.80	91.75
		06/28/05	0	6.36	97.19
MW-201	99.16	05/19/94	0	5.65	93.51
		10/19/94	0	23.70	75.46
		07/20/95	0	10.89	88.27
		04/17/96	0	6.42	92.74
		05/13/99	0	7.35	91.81
		01/25/00	0	9.39	89.77
		07/10/00	0	11.07	88.09
		06/18/01	0	11.77	87.39

Table 2
Historical Summary of Groundwater Elevation Data
-Santa Rosa U-Haul Center

WELL ID	TOC ELEVATION* (ft)	DATE MEASURED	PRODUCT THICKNESS**	DEPTH TO GROUNDWATER (ft)	GROUNDWATER ELEVATION (ft)
MW-201	99.16	02/28/02	0	6.02	93.14
		03/06/03	0	6.5	92.66
	103.99	11/16/04	0	10.16	93.83
		06/29/05	0	6.39	97.60
MW-202	98.77	05/19/94	0	4.58	94.19
		10/19/94	0	19.01	79.76
		07/20/95	0	10.64	88.13
		04/17/96	0	5.45	93.32
		05/13/99	0	7.06	91.71
		01/24/00	0	9.08	89.69
		07/10/00	0	10.22	88.55
		06/18/01	0	11.04	87.73
		02/28/02	0	6.08	92.69
		03/06/03	0	6.49	92.28
	103.38	11/16/04	0	10.02	93.36
		06/29/05	0	6.4	96.98
MW-203	99.36	05/19/94	0	10.45	88.91
		10/19/94	0	24.48	74.88
		07/20/95	0	17.49	81.87
		04/17/96	0	11.74	87.62
		05/13/99	0	13.40	85.96
		01/24/00	0	16.13	83.23
		07/10/00	0	18.13	81.23
		06/18/01	0	18.67	80.69
		02/28/02	0	10.45	88.91
		03/06/03	0	10.52	88.84
	103.98	11/16/04	0	15.33	88.65
		06/28/05	0	10.69	93.29
MW-301	NS	05/19/94	0	4.40	
		10/19/94	0	15.90	
		07/20/95	0	10.47	
		04/17/96	0	5.69	
		11/06/96	apprx. = 0.005'	14.89	
		05/13/99	0	6.65	
		01/25/00	0	10.29	
		07/11/00	0	10.26	
		06/18/01	0	10.85	
		03/01/02	0	5.80	
		03/06/03	0	5.97	
	103.28	11/16/04	0	11.04	92.24
		06/28/05	0	5.86	97.42
MW-401	NS	11/07/03	0	12.88	
	103.7	11/16/04	0	9.80	93.90
		06/29/05	0	6.11	97.59
MW-402	NS	11/07/03	0	13.21	
	103.27	11/16/04	0	9.78	93.49
		06/29/05	0	5.98	97.29

NOTES:

TOC Top of casing.
NS Not surveyed.
NM Not measured.
* Elevations reported in feet +MSL.
** Product Thicknesses and Depths reported in feet.
1992 Measurements reported by Earthtec Ltd., (October 1992). All others by SOTA.

Table 3
Historical Summary of Groundwater Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Well No.	Sample Date	TPH (Gasoline) EPA 8015 (ug/L)	TPH (Diesel) EPA 8015 (ug/L)	Benzene EPA 8260B (ug/L)	Toluene EPA 8260B (ug/L)	Ethyl Benzene EPA 8260B (ug/L)	Xylene EPA 8260B (ug/L)	MTBE EPA 8260B (ug/L)
MW-1	07/26/91	39	660	5.9	0.34	ND	0.03	-
	08/21/91	72	ND	11	0.33	ND	ND	-
	10/25/91	100	ND	2.1	ND	ND	ND	-
	01/21/92	ND	ND	ND	ND	ND	ND	-
	04/28/92	ND	180	ND	ND	ND	ND	-
	07/21/92	ND	ND	1.0	ND	ND	ND	-
	04/15/95	200	540	3.3	ND	ND	ND	-
	07/22/95	950	ND	21	0.41	ND	1.9	-
	04/16/96	320	ND	23	0.49	ND	0.66	23
	05/13/99	ND	ND	ND	ND	ND	ND	16
	01/25/00	ND	618	ND	ND	ND	ND	9.11
	07/10/00	ND	478	ND	ND	ND	ND	ND
	06/19/01	110	530	17	1.9	ND<0.5	2.2	15
	02/28/02	ND<50	880	0.52	ND<0.5	1.2	2.9	12
	03/06/03	ND<50	760	ND<1.0	ND<1.0	ND<1.0	ND<1.0	25
	11/16/04	ND<50	700	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.7
	06/29/05	<50	<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0
MW-2	04/28/92	FP	FP	FP	FP	FP	FP	FP
	07/21/92	-	-	-	-	-	-	-
	04/15/95	61,000	25,000	200	3,000	670	9,300	-
	07/22/95	FP	FP	FP	FP	FP	FP	-
	04/16/96	FP	FP	FP	FP	FP	FP	FP
	05/13/99	28,000	ND	170	530	520	3,420	51
	01/25/00	18,000	9,970	27.6	60.9	167	1,550	ND
	07/11/00	18,800	5,170	86.8	254.0	372	2,890	ND
	06/19/01	22,000	14,000	110	170	320	1,800	ND<50
	03/01/02	3,500	2,800	15	30	23	220	ND<1.0
	03/07/03	1,800	2,000	24	66	18	240	ND<2.5
	11/17/04	3,500	2,000	71	53	130	510	31
	06/29/05	9,530	5,400	26	59	118	907	17

Table 3
Historical Summary of Groundwater Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Well No.	Sample Date	TPH (Gasoline) EPA 8015 (ug/L)	TPH (Diesel) EPA 8015 (ug/L)	Benzene EPA 8260B (ug/L)	Toluene EPA 8260B (ug/L)	Ethyl Benzene EPA 8260B (ug/L)	Xylene EPA 8260B (ug/L)	MTBE EPA 8260B (ug/L)
J-01	04/28/92	-	-	-	-	-	-	-
	07/21/92	-	-	-	-	-	-	-
	04/15/95	36,000	6,500	930	4,700	360	6,200	-
	07/22/95	12,000	5,300	820	1,800	370	2,200	-
	04/16/96	30,000	9.2	940	3,100	1,100	6,200	780
	05/13/99	11,000	ND	920	410	750	2,220	370
	01/25/00	16,000	2,680	922	350	781	2,540	244
	07/11/00	ND	85.1	4.51	ND	ND	ND	139
	06/19/01	130	190	11	ND<10	ND<10	ND<10	330
	03/01/02	7,000	1,800	470	94	400	360	370
	03/07/03	5,300	1,200	490	73	320	190	400
	11/17/04	4,500	1,300	780	71	320	87	440
	06/29/05	3,200	930	160	75	69	114	190
UH-P1	07/26/91	ND	130*	ND	ND	ND	ND	-
	08/21/91	ND	ND	ND	ND	ND	ND	-
	10/25/91	-	-	-	-	-	-	-
	01/21/92	ND	ND	ND	ND	ND	ND	-
	04/28/92	1200	110	16	3.8	1.1	4.9	-
	07/21/92	72	ND	1.9	6.8	1.8	8.7	-
	04/15/95	ND	ND	ND	ND	ND	ND	-
	07/22/95	ND	ND	ND	ND	ND	ND	-
	04/16/96	ND	ND	ND	ND	ND	ND	ND
	05/13/99	ND	ND	ND	ND	ND	ND	ND
	01/25/00	ND	50.5	ND	ND	ND	ND	2.54
	07/10/00	ND	ND	ND	ND	ND	ND	0.569
	06/19/01	ND<50	90	ND<0.5	ND<0.5	ND<0.5	ND<0.5	2.3
	03/01/02	ND<50	170	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	03/06/03	ND<50	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/16/04	ND<50	80	ND<0.5	ND<0.5	ND<0.5	ND<0.5	6.8
	06/28/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0

Table 3
Historical Summary of Groundwater Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Well No.	Sample Date	TPH (Gasoline) EPA 8015 (ug/L)	TPH (Diesel) EPA 8015 (ug/L)	Benzene EPA 8260B (ug/L)	Toluene EPA 8260B (ug/L)	Ethyl Benzene EPA 8260B (ug/L)	Xylene EPA 8260B (ug/L)	MTBE EPA 8260B (ug/L)
UH-P2	07/26/91	ND	ND	ND	ND	ND	ND	-
	08/21/91	ND	ND	ND	ND	ND	ND	-
	10/25/91	ND	ND	ND	ND	ND	ND	-
	01/21/92	ND	ND	ND	ND	ND	ND	-
	04/28/92	ND	ND	ND	ND	ND	ND	-
	07/21/92	-	-	-	-	-	-	-
	04/15/95	ND	ND	ND	ND	ND	ND	-
	07/22/95	ND	ND	ND	ND	ND	ND	-
	04/16/96	ND	ND	ND	ND	ND	ND	-
	05/13/99	ND	ND	ND	ND	ND	ND	ND
	01/25/00	ND	ND	ND	ND	ND	ND	ND
	07/10/00	ND	ND	ND	ND	ND	ND	0.638
	06/19/01	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0
	03/01/02	ND<50	58	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.4
	03/06/03	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.5
	11/16/04	ND<50	ND<49	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	06/28/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0
MW-101	04/28/92	12000	570	1500	340	54	290	-
	07/21/92	5,900	ND	1,400	280	548	170	-
	04/15/95	3,600	1,200	550	200	ND	300	-
	07/22/95	5,900	760.0	1,000	640	210	650	-
	04/16/96	2,700	ND	410	89	19	270	100
	05/13/99	300	ND	29	ND	15	13	110
	01/25/00	336	153	59	4.18	13.9	13.3	21.6
	07/11/00	548	140	96.5	2.13	23.8	2.78	53.3
	06/18/01	280	190	65	ND<10	12	ND<10	59
	03/01/02	60	340	4.3	ND<2.5	ND<2.5	ND<2.5	140
	03/07/03	ND<50	140	ND<2.5	ND<2.5	ND<2.5	ND<2.5	130
	11/16/04	57	140	3.2	ND<0.5	ND<0.5	ND<0.5	28
	06/29/05	77	ND<100	2.2	ND<5.0	ND<5.0	ND<5.0	34
MW-102	04/28/92	1000	110	65	9.8	1.7	8.3	-
	07/21/92	270	ND	30	ND	ND	1.4	-
	04/15/95	ND	ND	ND	ND	ND	ND	-
	07/22/95	ND	ND	ND	ND	ND	ND	-
	04/16/96	ND	ND	ND	ND	ND	ND	ND

Table 3
Historical Summary of Groundwater Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Well No.	Sample Date	TPH (Gasoline) EPA 8015 (ug/L)	TPH (Diesel) EPA 8015 (ug/L)	Benzene EPA 8260B (ug/L)	Toluene EPA 8260B (ug/L)	Ethyl Benzene EPA 8260B (ug/L)	Xylene EPA 8260B (ug/L)	MTBE EPA 8260B (ug/L)
MW-102	05/13/99	ND	ND	ND	ND	ND	ND	ND
	01/25/00	ND	ND	ND	ND	ND	ND	0.72
	07/11/00	ND	141	ND	ND	ND	ND	0.588
	06/18/01	ND<50	50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.9
	03/01/02	ND<50	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	03/07/03	ND<50	130	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/16/04	ND<50	100	ND<0.5	ND<0.5	ND<0.5	ND<0.5	4.3
	06/28/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	1.4
MW-103	04/01/92	80000	10000	16,000	18,000	1,600	9,400	-
	07/21/92	110,000	ND	16,000	13,000	1,400	5,200	-
	04/15/95	12,000	2,500	640	1,100	53	1,500	-
	07/22/95	33,000	690	2,800	3,000	870	440	-
	04/16/96	12,000	3	620	520	610	1,400	210
	05/13/99	6,500	ND	220	77	750	840	51
	01/25/00	1,120	327	56.3	5.4	87.1	27.7	16.2
	07/10/00	ND	185	ND	ND	ND	ND	1.64
	06/18/01	120	270	7.6	0.5	2.0	2.4	8.3
	02/28/02	4,300	900	190	57	200	400	6.5
	03/07/03	1,600	690	96	26	88	180	5.7
	11/17/04	960	290	37	11	43	84	3.2
	06/29/05	1,080	170	52	25	72	158	2.1
MW-104	04/01/92	730	430	70	11	3.7	26	-
	07/21/92	310	ND	14	4.5	2.0	3.9	-
	04/15/95	ND	ND	ND	ND	ND	ND	-
	07/22/95	ND	510.0	ND	ND	ND	ND	-
	04/16/96	ND	ND	ND	ND	ND	ND	ND
	05/13/99	ND	ND	ND	7.7	8.5	52.0	-
	01/25/00	ND	54.9	ND	ND	ND	ND	ND
	07/11/00	ND	844	ND	ND	ND	ND	ND
	06/19/01	ND<50	87	ND<0.5	ND<0.5	ND<0.5	ND<0.5	1.3
	03/01/02	ND<50	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	8.1
	03/07/03	ND<50	190	ND<0.5	ND<0.5	ND<0.5	ND<0.5	20
	11/16/04	ND<50	140	ND<0.5	ND<0.5	ND<0.5	ND<0.5	9.2
	06/28/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	6

Table 3
Historical Summary of Groundwater Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Well No.	Sample Date	TPH (Gasoline) EPA 8015 (ug/L)	TPH (Diesel) EPA 8015 (ug/L)	Benzene EPA 8260B (ug/L)	Toluene EPA 8260B (ug/L)	Ethyl Benzene EPA 8260B (ug/L)	Xylene EPA 8260B (ug/L)	MTBE EPA 8260B (ug/L)
MW-201	08/20/92	60	ND	*ND	*ND	*ND	*ND	-
	04/15/95	ND	ND	ND	ND	ND	ND	-
	07/22/95	ND	ND	ND	ND	ND	ND	-
	04/16/96	ND	ND	ND	ND	ND	ND	ND
	05/13/99	ND	ND	ND	ND	ND	ND	ND
	01/25/00	ND	ND	ND	ND	ND	ND	ND
	07/10/00	ND	ND	ND	ND	ND	ND	ND
	06/18/01	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0
	02/28/02	ND<50	130	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	03/06/03	ND<50	61	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/17/04	ND<50	53	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	06/29/05	ND<50	ND<100	ND<1.0	ND<1.0	ND<1.0	ND<5.0	ND<1.0
MW-202	08/20/92	ND	ND	*ND	*ND	*ND	*ND	-
	04/15/95	ND	ND	ND	ND	ND	ND	-
	07/22/95	ND	ND	ND	ND	ND	ND	-
	04/16/96	ND	ND	ND	ND	ND	ND	ND
	05/13/99	ND	ND	ND	ND	ND	ND	ND
	01/25/00	ND	ND	ND	ND	ND	ND	ND
	07/10/00	ND	ND	ND	ND	ND	ND	ND
	06/18/01	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0
	02/28/02	ND<50	60	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	03/07/03	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/16/04	ND<50	ND<52	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	06/29/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0
MW-203	08/20/92	ND	ND	*ND	*ND	*ND	*ND	-
	04/15/95	ND	ND	ND	0.40	ND	ND	-
	07/22/95	ND	ND	0.44	0.94	0.40	1.7	-
	04/16/96	ND	ND	ND	ND	ND	ND	ND
	05/13/99	ND	ND	ND	ND	ND	ND	ND
	01/25/00	ND	78.1	ND	ND	ND	ND	ND
	07/10/00	ND	ND	ND	ND	ND	ND	ND
	06/18/01	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<1.0
	02/28/02	ND<50	110	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	03/06/03	ND<50	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/17/04	ND<50	ND<53	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	06/29/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0

Table 3
Historical Summary of Groundwater Analysis
(Organic Compounds)-Santa Rosa U-HAUL Center

Well No.	Sample Date	TPH (Gasoline) EPA 8015 (ug/L)	TPH (Diesel) EPA 8015 (ug/L)	Benzene EPA 8260B (ug/L)	Toluene EPA 8260B (ug/L)	Ethyl Benzene EPA 8260B (ug/L)	Xylene EPA 8260B (ug/L)	MTBE EPA 8260B (ug/L)
MW-301	04/15/95	ND	ND	0.37	0.35	ND	ND	-
	07/22/95	250	ND	43	0.70	14	0.67	-
	04/16/96	ND	ND	2.9	0.39	0.49	ND	25
	05/13/99	ND	ND	ND	ND	ND	ND	ND
	01/25/00	123	211	0.698	ND	2.81	11.9	1.55
	07/11/00	ND	3,980	ND	ND	ND	ND	ND
	06/18/01	ND<50	1,200	ND<10	ND<10	ND<10	ND<10	ND<20
	03/01/02	ND<50	690	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.94
	03/07/03	ND<50	150	ND<0.5	ND<0.5	ND<0.5	ND<0.5	8.4
	11/17/04	450	340	ND<5.0	ND<5.0	53	52	ND<5.0
	06/28/05	94.0	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	10
MW-401	11/06/03	ND<50	170	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/17/04	ND<50	ND<54	ND<0.5	ND<0.5	ND<0.5	ND<0.5	0.96
	06/29/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0
MW-402	11/06/03	ND<50	170	0.62	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	11/17/04	ND<50	ND<57	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
	06/29/05	ND<50	ND<100	ND<1.0	ND<5.0	ND<5.0	ND<5.0	ND<1.0

Notes:

^ Heavy hydrocarbons not diesel fuel

* denotes EPA method 602

- sample not obtained FP- Free Product

ND - non detect

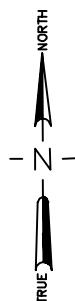
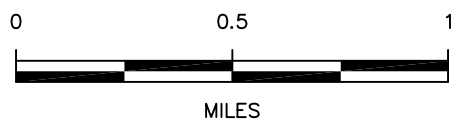
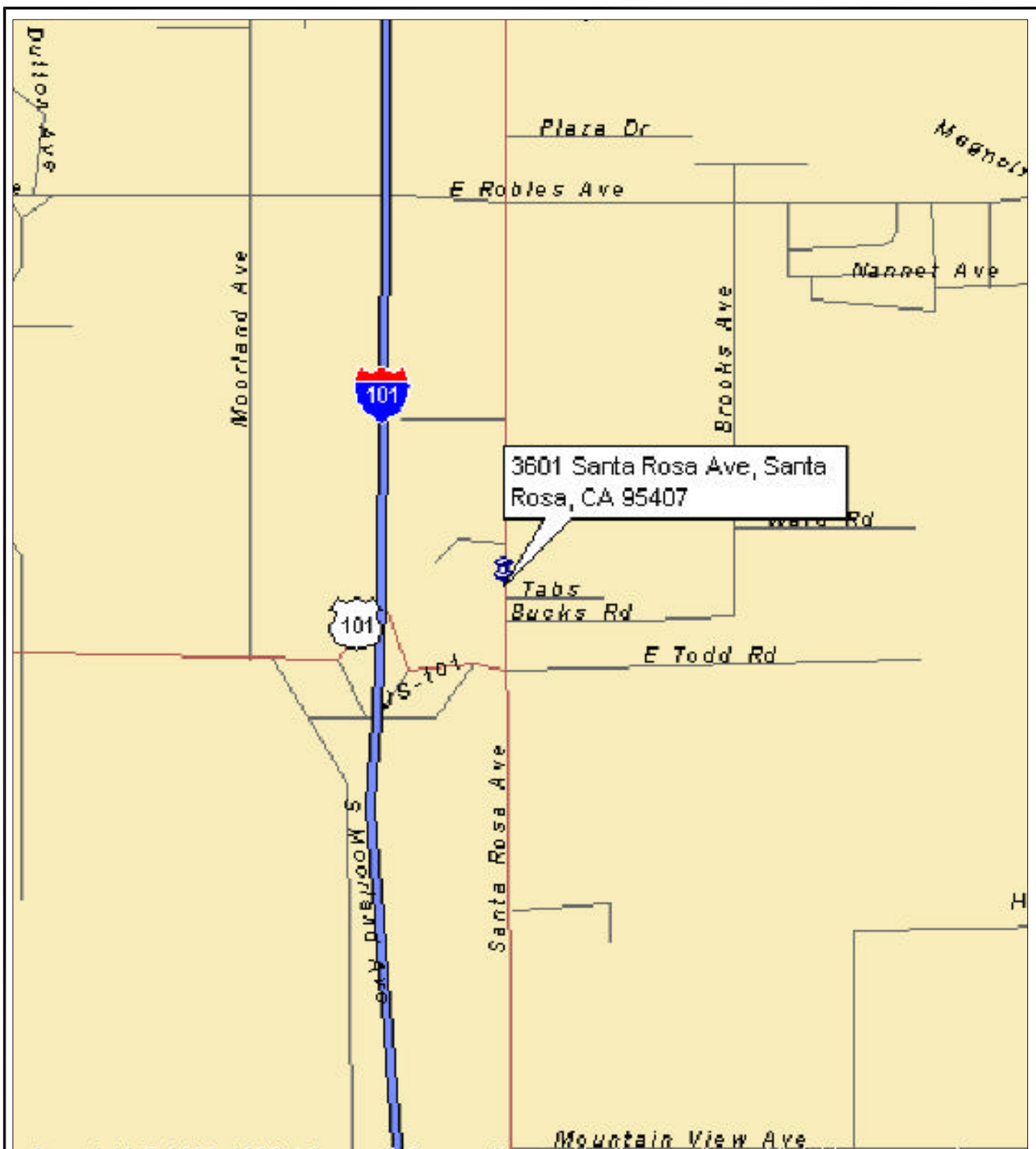
NA - not analyzed

Table 4
Pilot Study Analytical Results
-Santa Rosa U-Haul Center

WELL ID	TPH (Gasoline) EPA 8015 (ug/L)	TPH (Diesel) EPA 8015 (ug/L)	Benzene EPA 8260B (ug/L)	Toluene EPA 8260B (ug/L)	Ethyl Benzene EPA 8260B (ug/L)	Xylene EPA 8260B (ug/L)	MTBE EPA 8260B (ug/L)	COD EPA 410.4 (mg/L)	BOD EPA 405.1 (mg/L)	HPC SM 9215 (cfu/mL)	DO (Field) (mg/L)
MW-2	11,700	1,900	135	318	330	1,880	20	190	51	13500	9.8
	10,700	4,500	41	187	240	2,650	<25	200	56	3700	4.1
	9,530	5,400	26	59	118	907	17	130	60	280000	7.9
J-01	1,940	340	121	21	101	33	81	22	8	2900	4.2
	5,340	1,000	368	267	109	236	190	78	16	1150000	2.9
	3,200	930	160	75	69	114	190	45	18	220000	2.8
MW-103	1,760	150	52	22	86	161	1.6	7	3	2000	3.2
	1,070	380	35	13	69	95	2.1	15	5	265	3.5
	1,080	170	52	25	72	158	2.1	12	7	2300	2

Table 5
Comparison of the Advantages and Disadvantages of the Remedial Alternatives

Alternative Technology	Advantages	Disadvantages
Natural Attenuation (NA)	<ul style="list-style-type: none"> Naturally remediate contaminants that are adsorbed onto or trapped within the geological materials in the aquifer is composed along with contaminants dissolved in the groundwater. Biodegradation products are water and carbon dioxide. BTEX are generally the most susceptible to biodegradation. No disturbance to site operations. 	<ul style="list-style-type: none"> The ability of remediation by natural attenuation to achieve remedial goals are closely related to the site groundwater geochemical, Microbiological and Respirometry parameters, the changes on the site hydrogeological conditions and site operation. The slow natural attenuation process may not achieve the site specific clean up goals. Time frames for achieving remedial goals may be relatively long. Require long-term continuous monitoring.
Ozone Injection/ Air Sparging	<ul style="list-style-type: none"> Innovative technology, readily available equipment, easy installation. Has advantages of natural attenuation, and enhanced biodegradation process by adding strong oxidant and oxygen, into the system, quick and complete oxidation. Required no removal, treatment, storage, or discharge considerations for groundwater. Minimum risk to potential receptors due to site disruption and/or inability to proper control the engineered processes. 	<ul style="list-style-type: none"> Effectiveness less certain when applied to sites with low-permeability soil or stratified soil., but much better than biodegradation and air sparging. Some operation and maintenance needed.
Oxygen Release Compound (ORC)	<ul style="list-style-type: none"> Has advantages of natural attenuation, plus enhanced biodegradation process by adding oxygen, nutrients, and microbial concentrations into the system. Readily available equipment, easy installation. Minimal disturbance to site operations. No maintenance needed. 	<ul style="list-style-type: none"> Effectiveness less certain when applied to sites with low-permeability soil or stratified soil. Potential to inducing migration of constituents. May require continuous monitoring. Remediation may only occur in more permeable layer. Discharge permit generally required.



SITE LOCATION MAP U-HAUL #708-57

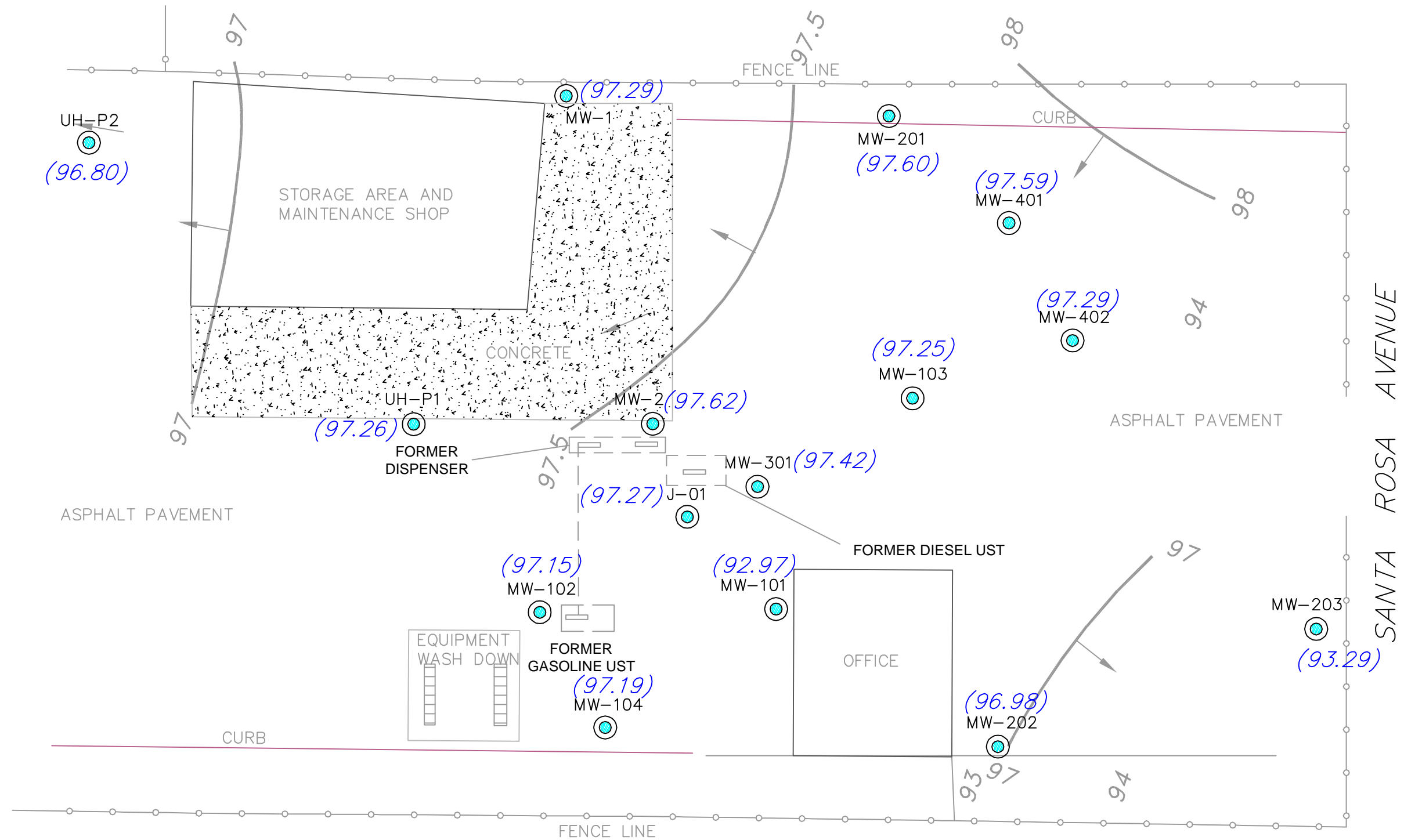
3601 SANTA ROSA AVENUE
SANTA ROSA, CA



FIGURE 1

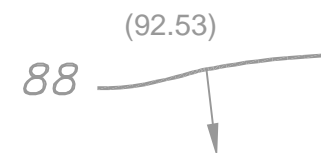
PROJECT NO.
93HW014

AUGUST 2005

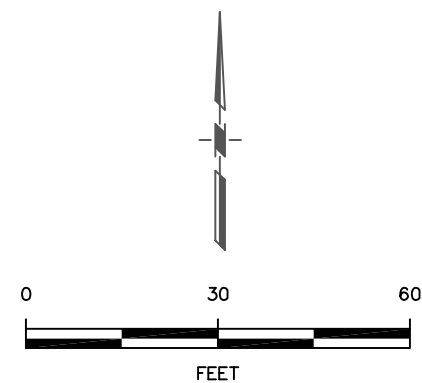


LEGEND

⊙ = GROUNDWATER MONITORING WELL



GROUNDWATER ELEVATION MEASURED 11/16/04
GROUNDWATER TABLE CONTOUR, WITH ARROWS
INDICATING GROUNDWATER FLOW DIRECTION



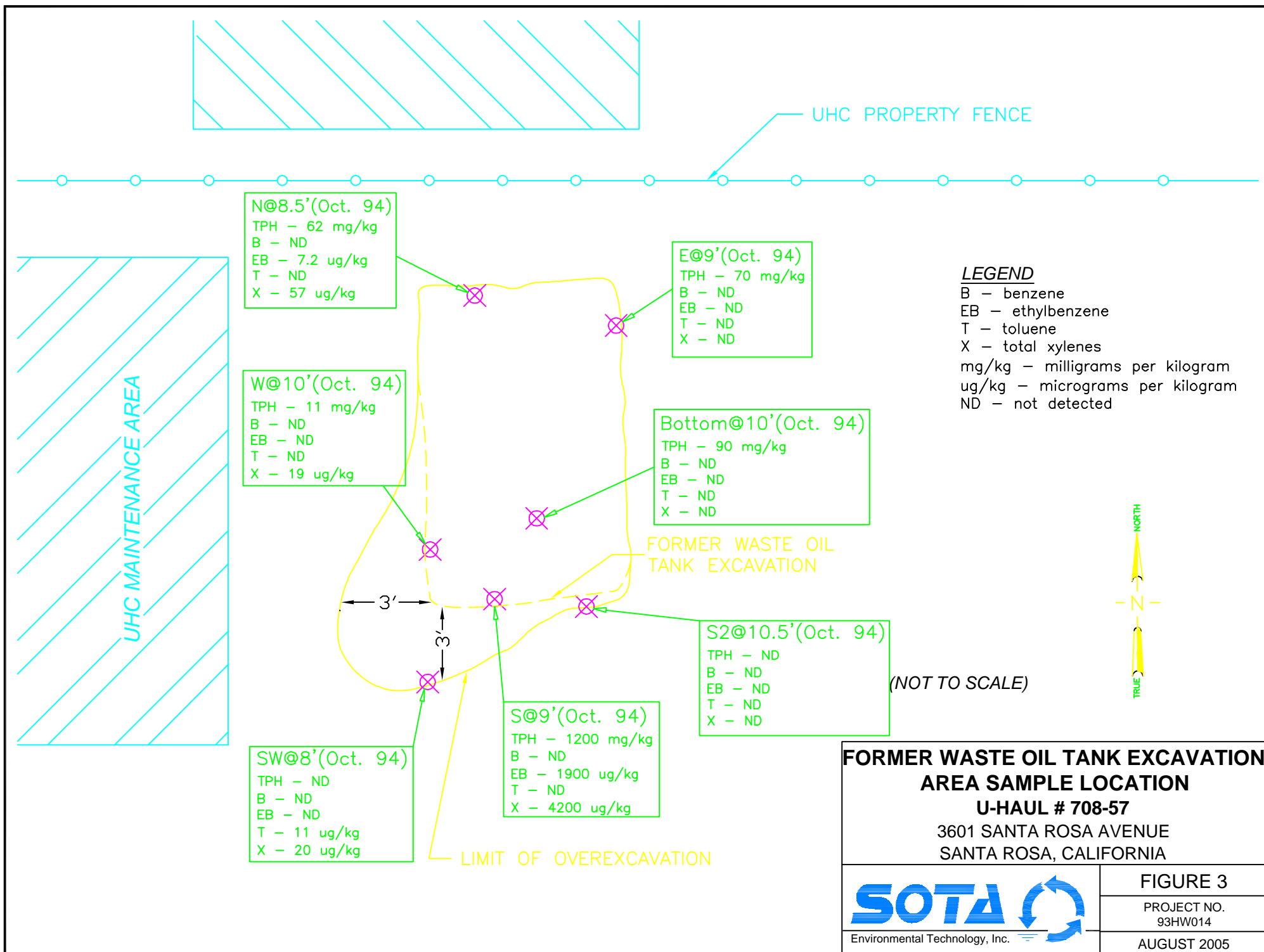
GRPONDWATER GRADIENT MAP (6/05)
U-HAUL CENTER #708-57
3601 SANTA ROSA AVENUE
SANTA ROSA, CALIFORNIA



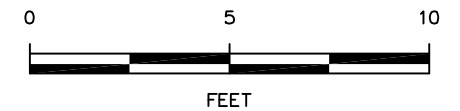
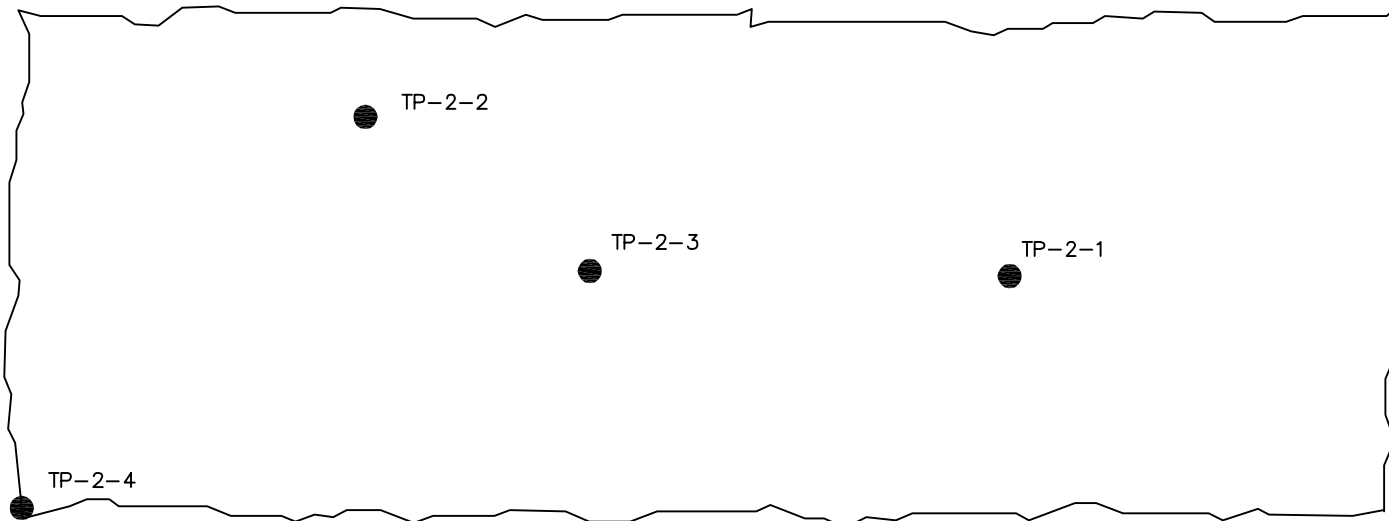
FIGURE 2

PROJECT NO.
93HW014

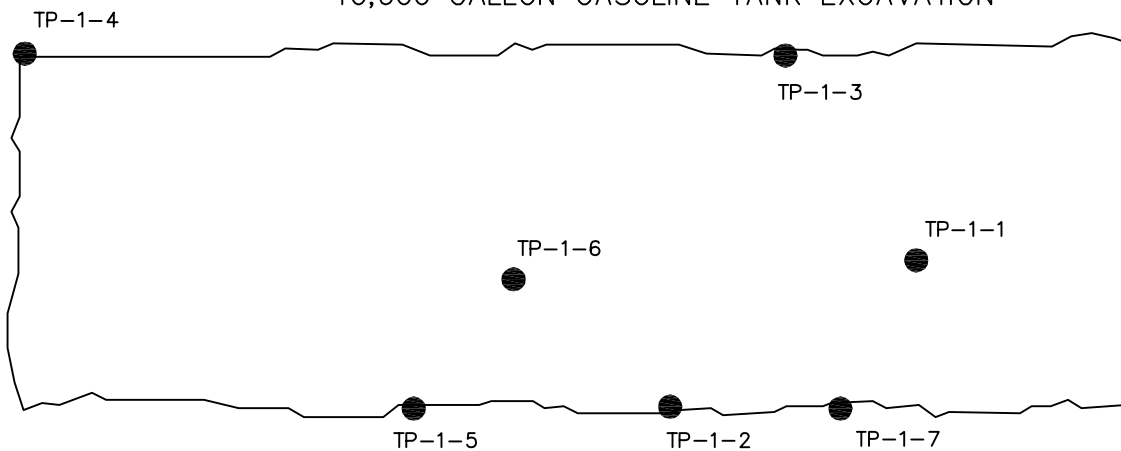
AUGUST 2005



15,000 GALLON DIESEL TANK EXCAVATION



10,000 GALLON GASOLINE TANK EXCAVATION



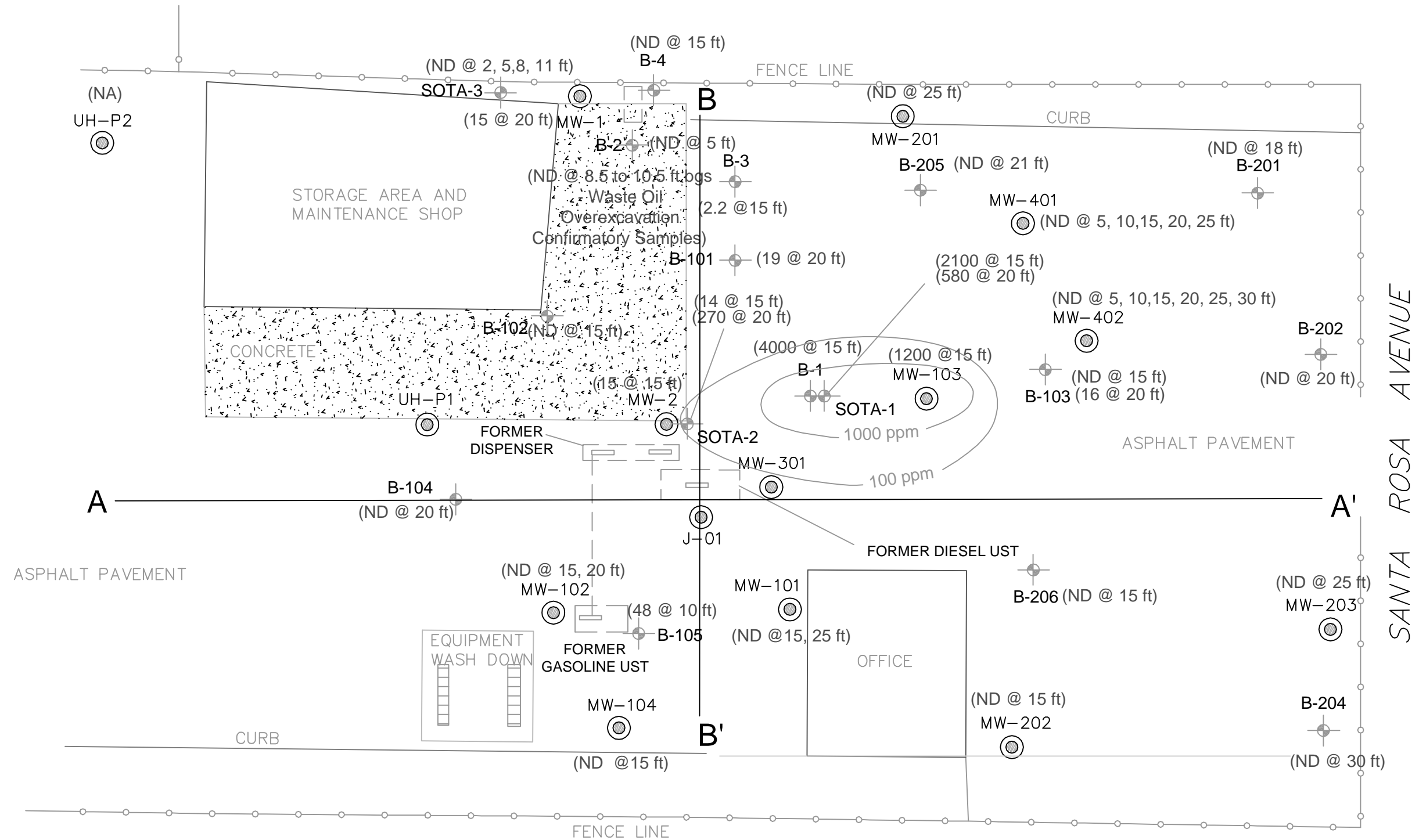
**FORMER DIESEL/GASOLINE TANK
EXCAVATION AREA SAMPLE LOCATION**
U-HAUL # 708-57
3601 SANTA ROSA AVENUE
SANTA ROSA, CALIFORNIA



FIGURE 4

PROJECT NO.
93HW014

AUGUST 2005



LEGEND

- MW-1 GROUNDWATER MONITORING WELL
 B-105 APPROXIMATE SOIL BORING LOCATION
 SOTA-1 APPROXIMATE SOIL BORING LOCATION (SOTA, 02)

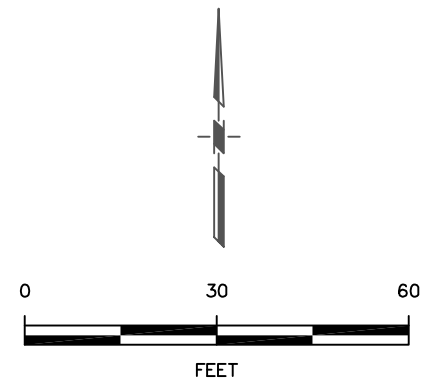
(ND) – Not Detected at Laboratory Detection Limits

(NA) – Not Available

(30 @ 15 ft) = Concentrations of Benzene in Soil at 30 ppm at 15 feet bgs.

All Concentrations Expressed in Milligrams per Kilogram (ppm)

A-A', B-B' – CROSS SECTIONS



APPROXIMATE HORIZONTAL EXTENT OF RESIDUAL TPH-g IN SOIL

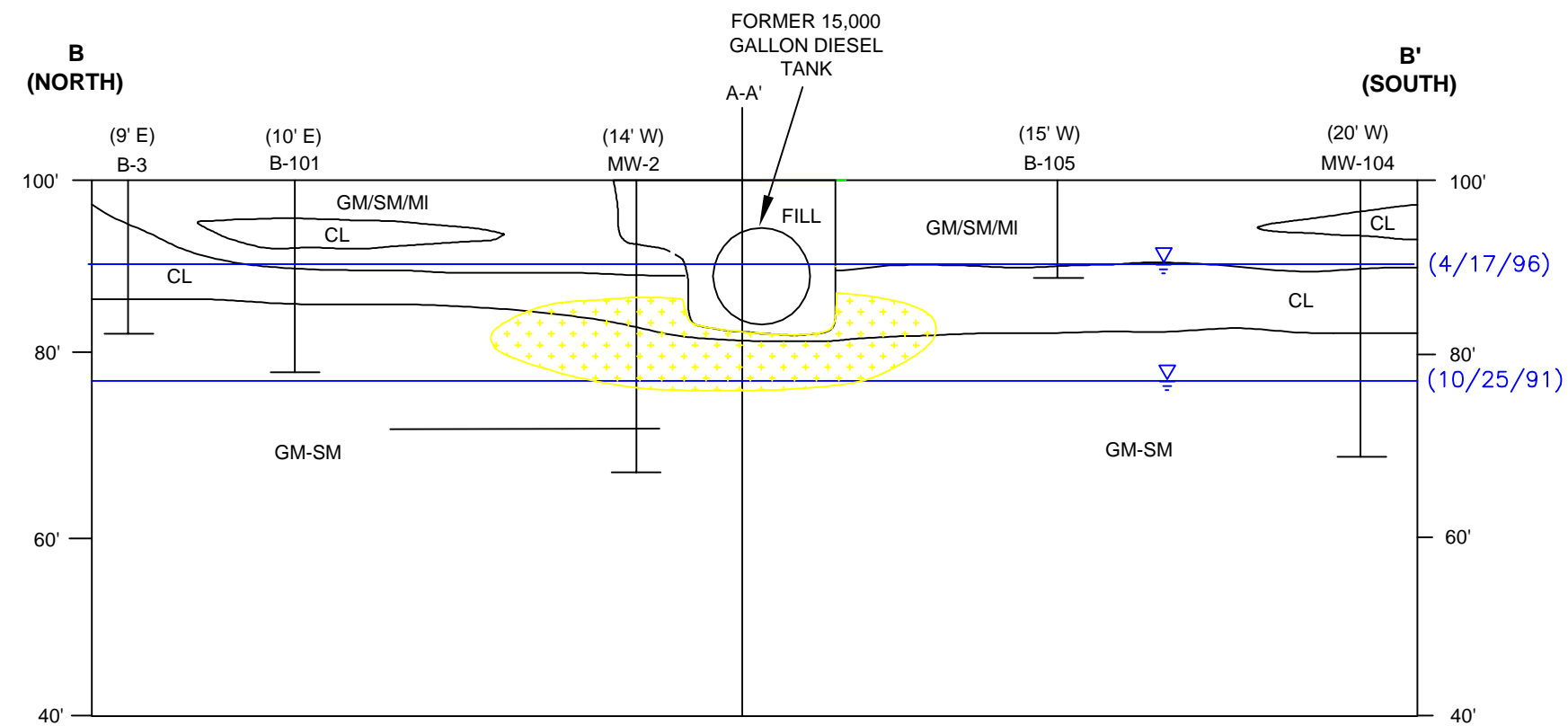
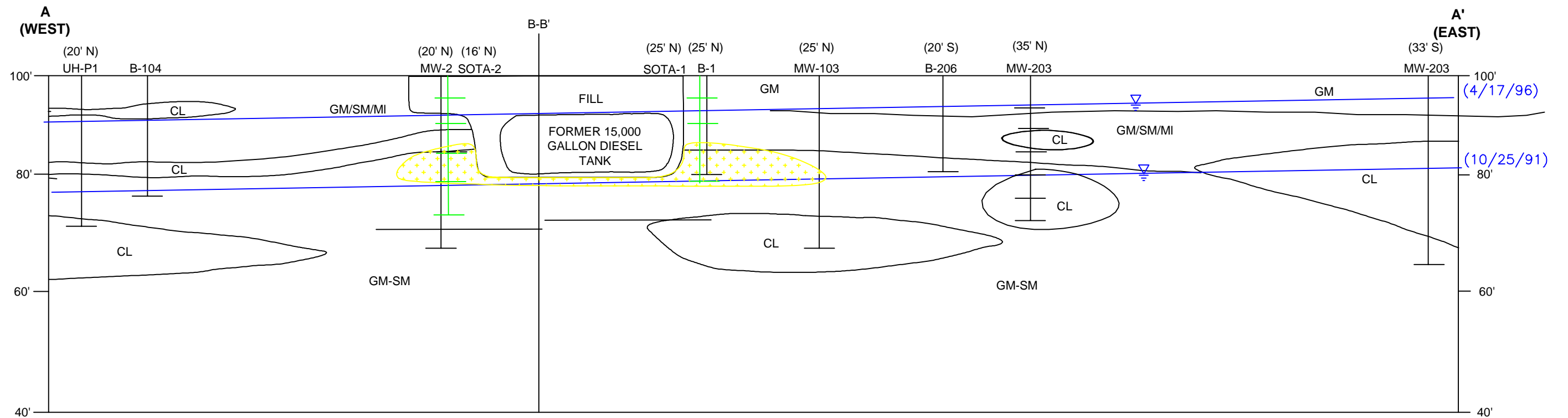
U-HAUL CENTER #708-57
 3601 SANTA ROSA AVENUE
 SANTA ROSA, CALIFORNIA



FIGURE 5

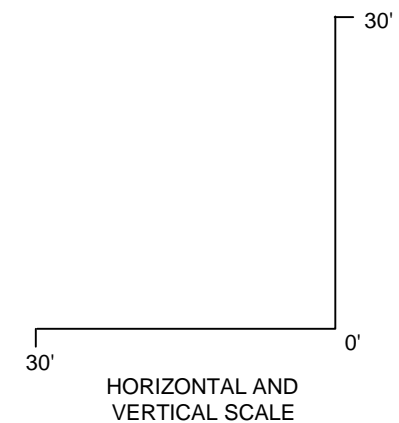
PROJECT NO.
93HW014

AUGUST 2005



LEGEND

- (16' W) INDICATES DIRECTION AND DISTANCE OF OFFSET
- MW-104 MONITORING WELL LOCATION
- B-105 BORING LOCATION
- GM Silty GRAVEL
- CL Silty CLAY, sandy CLAY
- GM-SM Silty GRAVEL, silty SAND
- GM-SM/MI Silty GRAVEL, silty SAND, sandy SILT
- ▽— (10/25/91) – Groundwater elevation and date of measurment
- APPROXIMATE AREA OF CONTAMINATION



CROSS SECTION ILLUSTRATING RESIDUAL SOIL CONTAMINATION

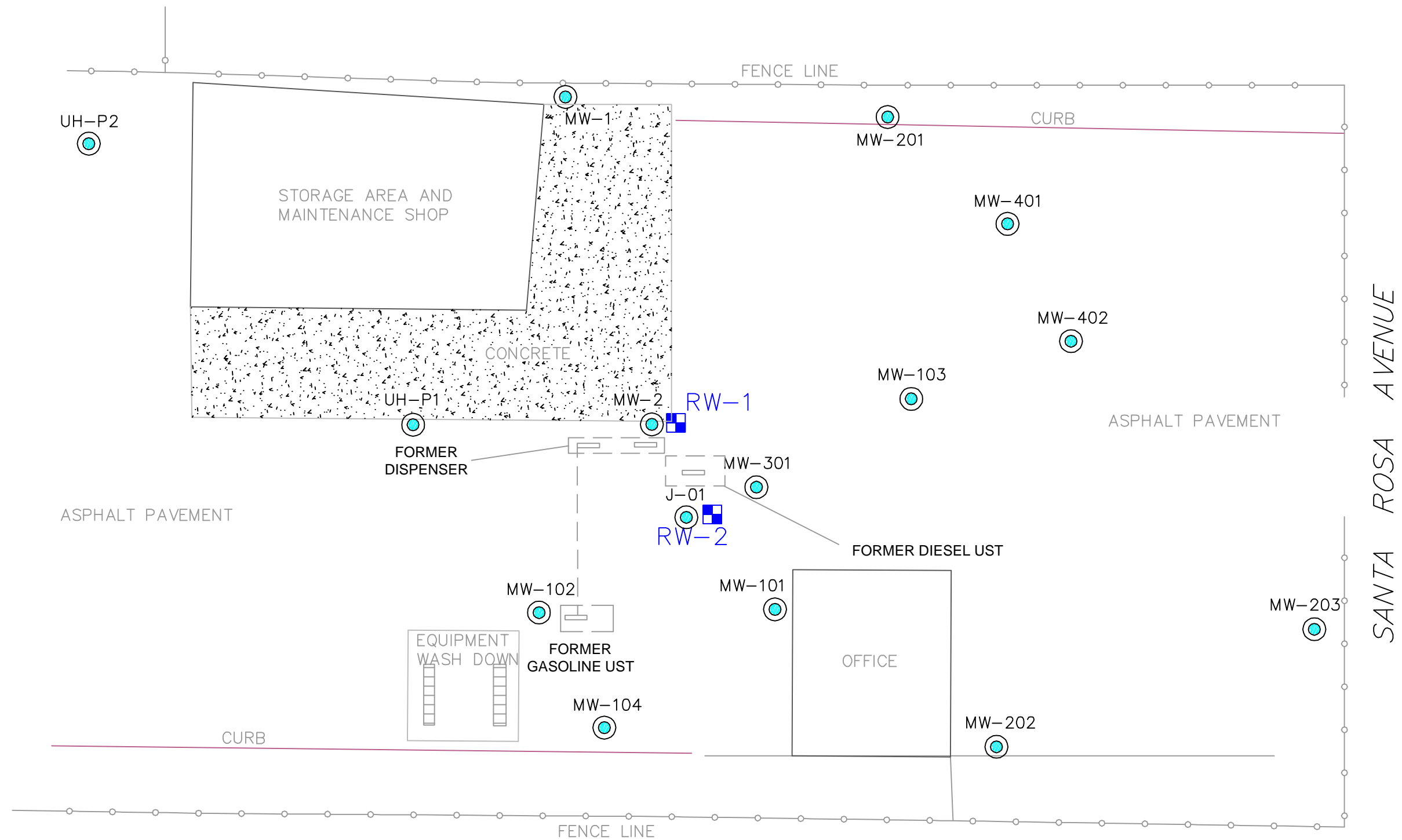
U-HAUL CENTER #708-57
3601 SANTA ROSA AVENUE
SANTA ROSA, CALIFORNIA





FIGURE 6

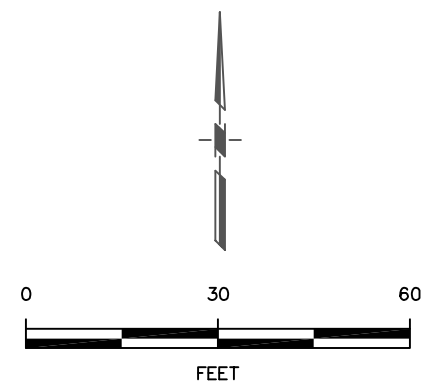
PROJECT NO.
93HW014

AUGUST 2005



LEGEND

-  = GROUNDWATER MONITORING WELL
-  = PILOT STUDY OZONE SPARGING WELL



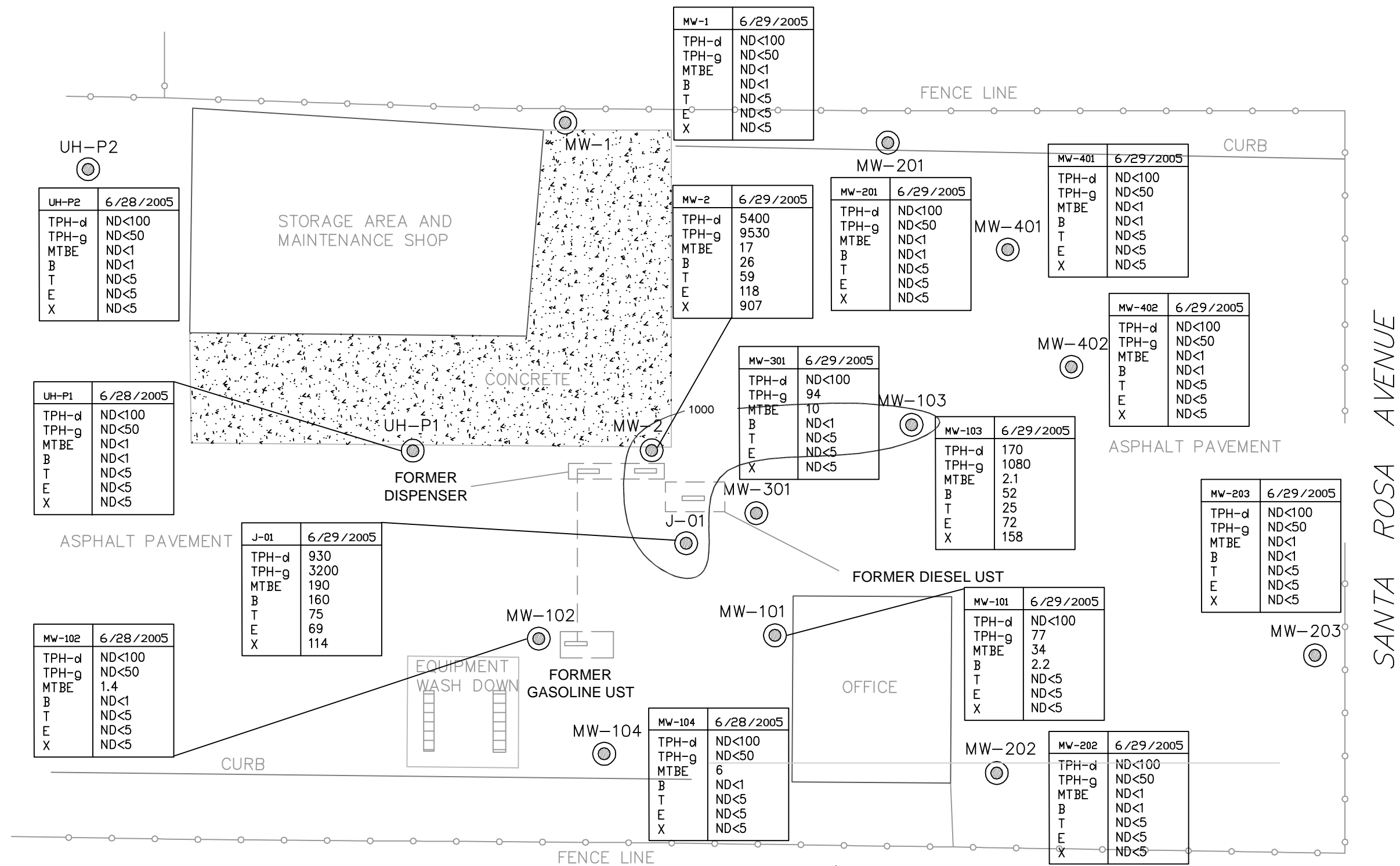
PILOT STUDY WELL LOCATIONS
U-HAUL CENTER #708-57
3601 SANTA ROSA AVENUE
SANTA ROSA, CALIFORNIA



FIGURE 7

PROJECT NO.
93HW014

AUGUST 2005



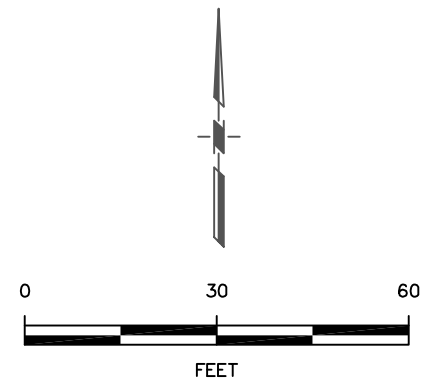
LEGEND

MW-1 GROUNDWATER MONITORING WELL

Extent of TPH-g (ug/L) in groundwater

ABBREVIATIONS:

TPH-d : DIESEL ug/L
 TPH-g : GASOLINE ug/L
 MTBE : METHYL TERTIARY BUTYL ETHER ug/L
 B : BENZENE ug/L
 T : TOULENE ug/L
 E : ETHYLBENZENE ug/L
 X : XYLENES ug/L



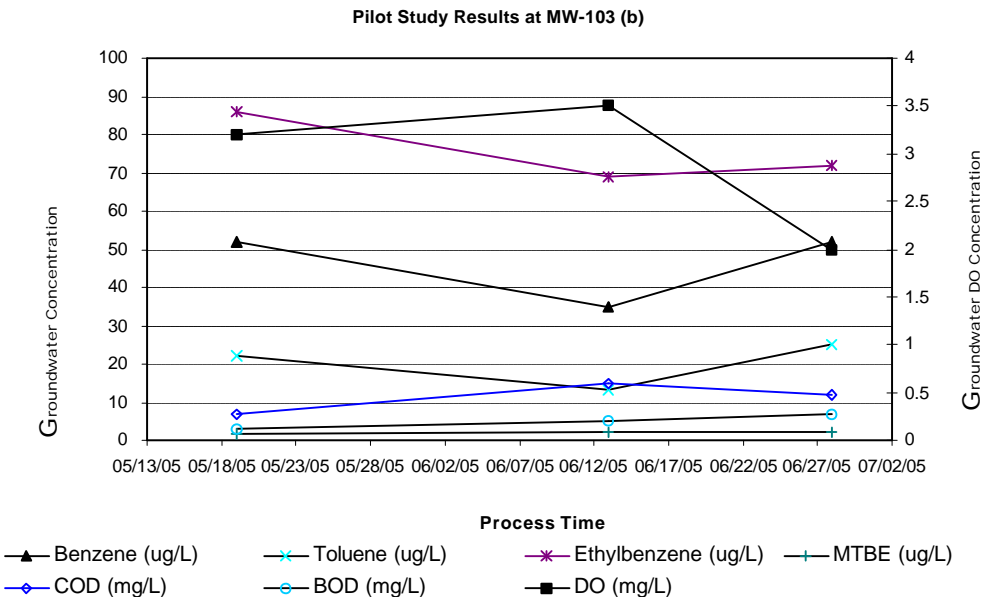
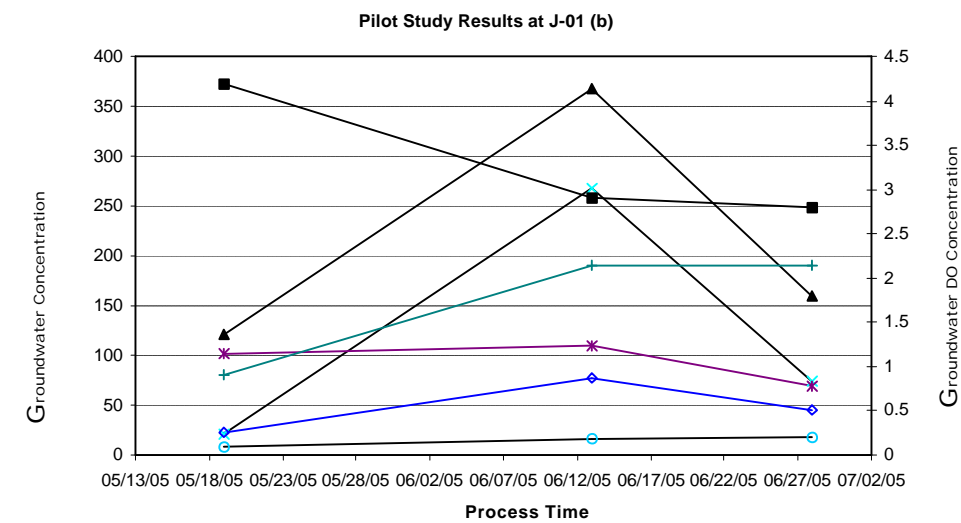
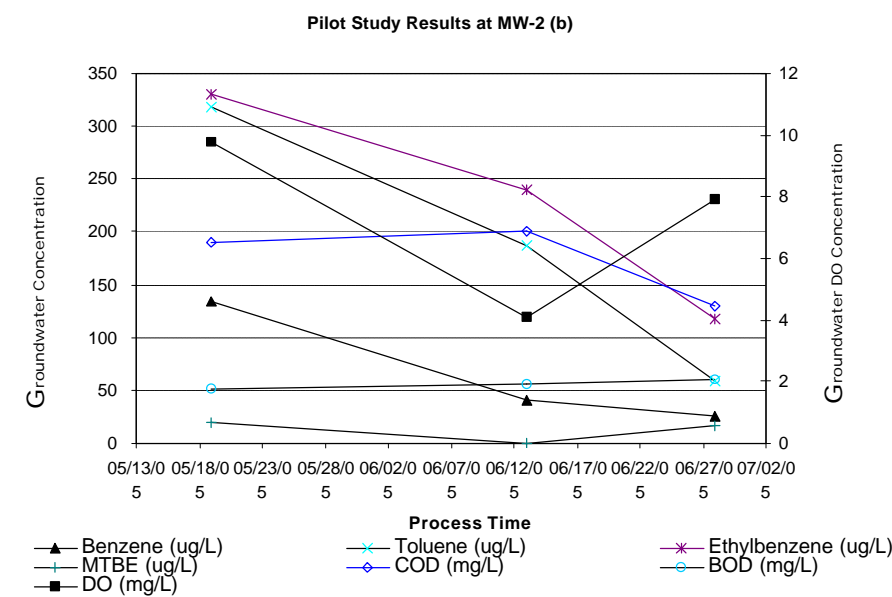
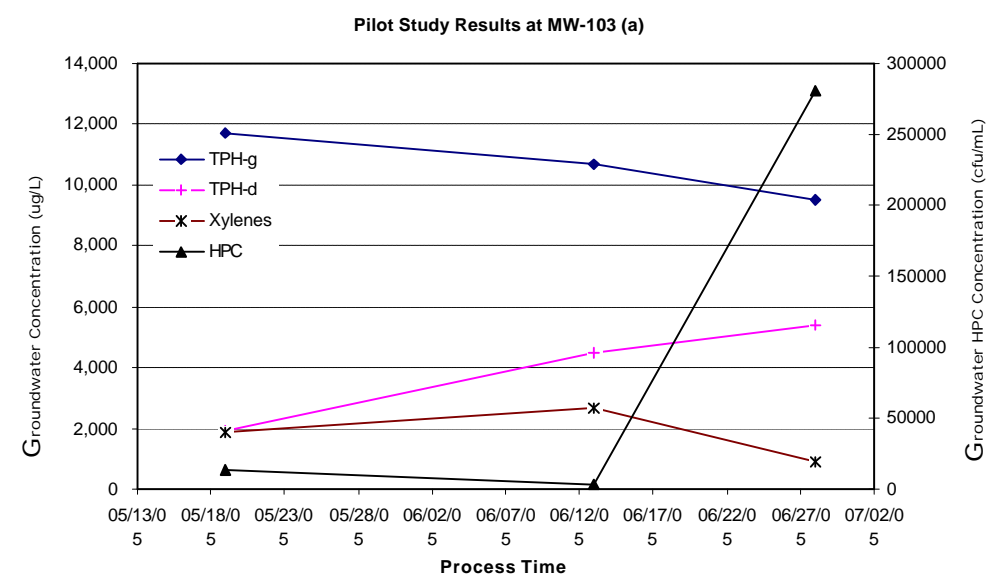
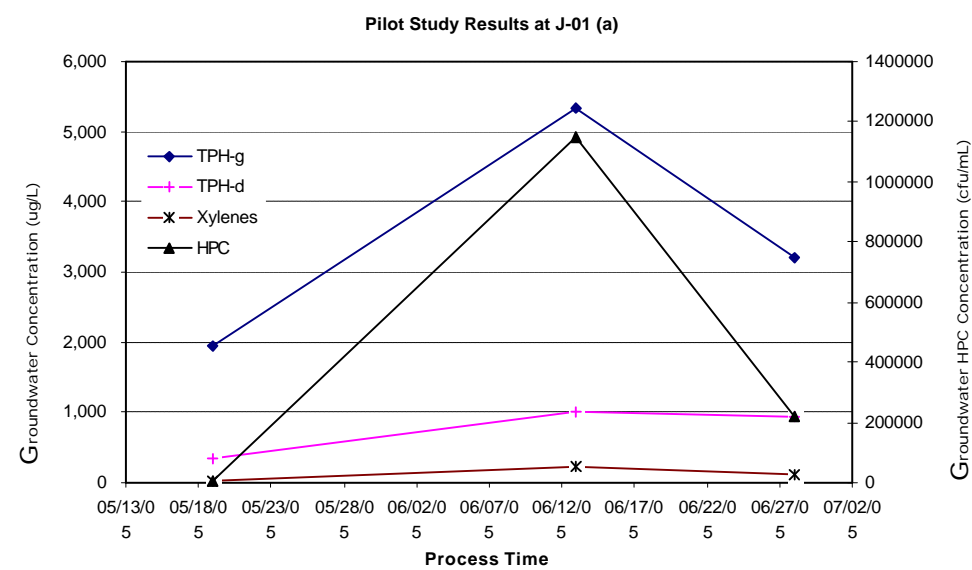
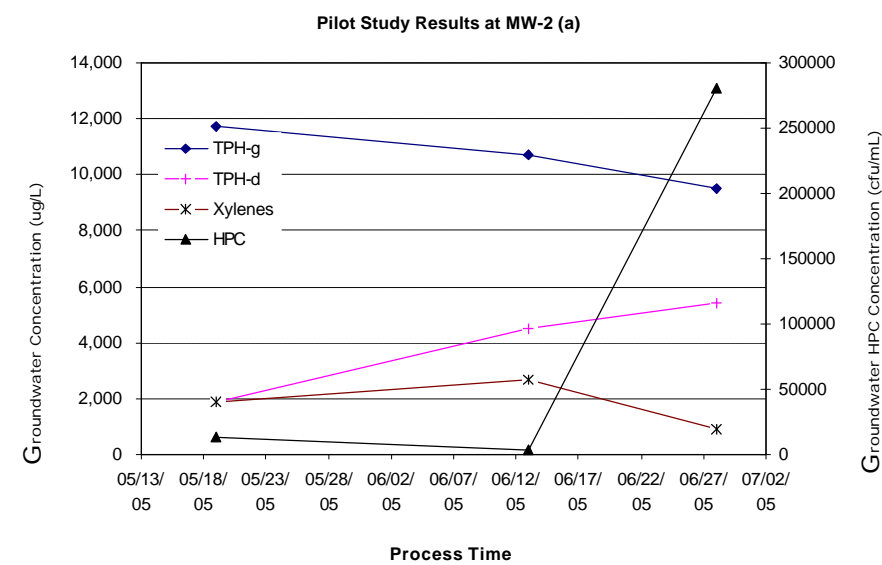
GROUNDWATER ANALYTICAL RESULTS
 U-HAUL CENTER #708-57
 3601 SANTA ROSA AVENUE
 SANTA ROSA, CALIFORNIA



FIGURE 8

PROJECT NO.
93HW014

DECEMBER 2004



LEGEND

ABBREVIATIONS:

TPH-d : DIESEL
 TPH-g : GASOLINE
 MTBE : METHYL TERTIARY BUTYL ETHER
 COD : CHEMICAL OXYGEN DEMAND
 BOD : BIOCHEMICAL OXYGEN DEMAND
 DO : DISSOLVED OXYGEN
 HPC : HETEROTROPHIC PLATE COUNT

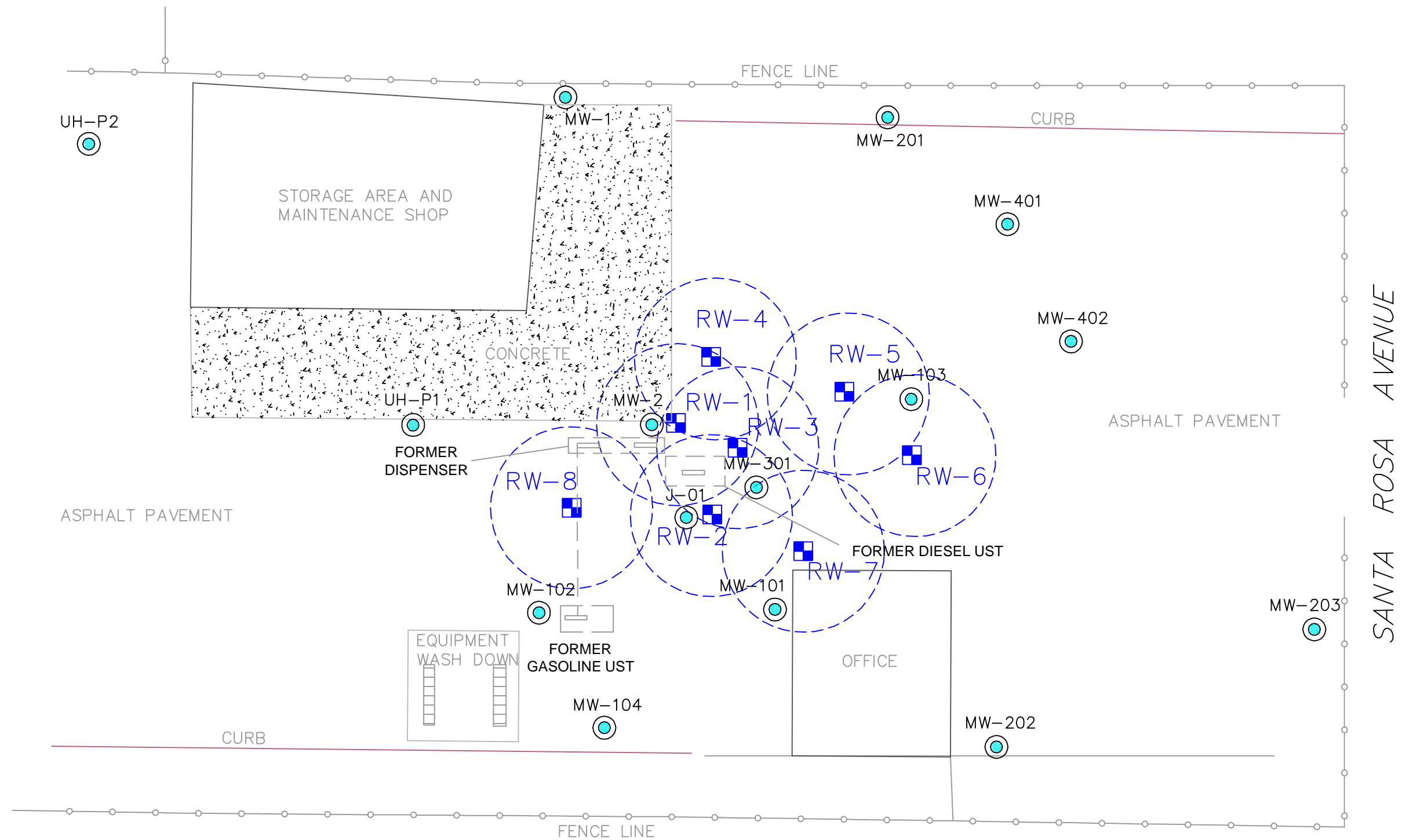
PILOT STUDY RESULTS
U-HAUL CENTER #708-57
 3601 SANTA ROSA AVENUE
 SANTA ROSA, CALIFORNIA






FIGURE 9

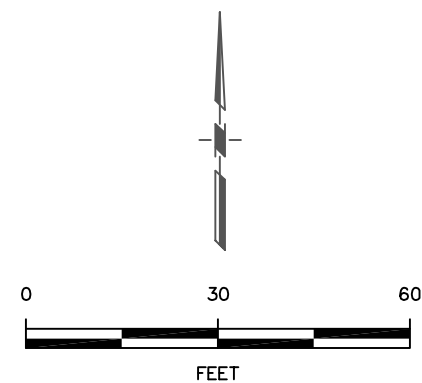
PROJECT NO.
93HW014

AUGUST 2005



LEGEND

-  = GROUNDWATER MONITORING WELL
-  = OZONE SPARGING WELL
-  = OZONE SPARGING WELL RADIUS OF INFLUENCE



PROPOSED SPARGING WELL LOCATIONS
U-HAUL CENTER #708-57
3601 SANTA ROSA AVENUE
SANTA ROSA, CALIFORNIA



FIGURE 10

PROJECT NO.
93HW014

AUGUST 2005

REMEDIATION OF PETROLEUM HYDROCARBON IMPACTED SOIL AND GROUNDWATER
IMPLEMENTATION SCHEDULE

ID	Task Name	Start	Finish			2006				2007				2008				2009				2010				2011				2012				2013			
				Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3	Qtr 4	Qtr 1	Qtr 2	Qtr 3					
1	Corrective Action Plan (CAP) Submittal	Mon 8/15/05	Mon 8/15/05																																		
2	Lead Regulatory Agency (RWQCB) Comment on CAP	Tue 8/16/05	Wed 11/16/05																																		
3	CAP Implementation Permitting	Thu 11/17/05	Fri 1/20/06																																		
4	Remedial Approach Implementation	Mon 1/23/06	Mon 7/23/07																																		
5	Performance Monitoring and Reporting	Tue 7/24/07	Mon 9/24/07																																		

CAP IMPLEMENATATION
UHC #708-57 SANTA ROSA,
CA

Task



Progress



Summary



Rolled Up Split



Rolled Up Progress



Project Summary



Split



Milestone



Rolled Up Task



Rolled Up Milestone



External Tasks



Figure 11

Groundwater Monitoring at U-Haul, Santa Rosa, CA

		PROJECT:		WELL NO.:	
		GROUNDWATER MONITORING AT U-HAUL CENTER, SANTA ROSA, CA.		MW-2	
WELL SAMPLING RECORD		SOTA PROJECT NO.:		SITE:	
		93HW014		3601 SANTA ROSA AVENUE U-HAUL CENTER, SANTA ROSA, CA.	
		PURGING CRITERIA:		LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		$(29.70 - 3.63) \times .8 = 20.9$		Y/Z	
PURGE SAMPLING METHOD METHOD		REMARKS (eq. Well Condition, etc):			
HAND PUMP					
SUB. PUMP X		CASING: <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Damaged			
BAILER		LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
VAC. TRUCK					
OTHER					
BOREHOLE DIAMETER: 8"		PURGING DATE: 5/20/05		DATE/TIME OF SAMPLING: 5/20/05 11200	
CASING DIAMETER (ID): 2"		WEATHER: Sunny			
REFERENCE POINT: TOC		BOREHOLE VOLUME:			
DEPTH TO:		ANALYSES: SEE COC			
WATER LEVEL: 3.63		ANALYSES CONTD:			
TOP OF FILTER PACK:		SAMPLE CONTAINERS: SEE COC			
TOP OF SCREEN:		LABORATORY: Sequoia Laboratories			
BOTTOM OF SCREEN:		AIRBILL TRACKING NO.:			
BOREHOLE DEPTH: 29.7'					

PURGING DATA				CUMULATIVE TOTAL REMOVED		WATER QUALITY PARAMETERS								COMMENTS:
Date	Time Begun	Time Finished	Water Removed	Gallons	Well Volumes	pH	Conductivity (mS/cm)	Turbidity (Visual or NTU)	D.O. (mg/L)	Temp (°C)	Salinity (%)	Others		
5/20	1100	1111	21	21	1	7.2	457	9	6.3	21.9	0		ODOR	
L	1111	1116	42	42	2	7.0	532	7	7.2	21.6	0			
	1116	1122	63	63	3	7.1	555	6	9.1	21.0	0			
	1157	1200	-	-	-	7.1	635	5	9.8	21.0	0			

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled: 1200		
1125	4.51	0.68	95%	Sampling Device: Piston Disposable Bailer		
1155	3.63	0	100%	Container(s)/Preservative(s):		
				Type	Qty.	Preserv.
				40 ml VOA	6	HCl
				1 L Ambr	2	-
				1 L Poly	1	-
				500 ml Poly	1	H ₂ SO ₄
				100 ml Poly	1	N ₂ S ₂ O ₈

Groundwater Monitoring at U-Haul, Santa Rosa, CA

[illegible]

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled:		
1135	14.67	10.74	12	1200		
1159	6.07	2.14	780%	Sampling Device:	Teflon Disposable Bailor	
				Container(s)/Preservative(s):		
				Type	Qty.	Preserv.
				40 ml vial	6	ACI
				Amb L	2	NP
				1L Poly	1	NP

உதாரணம் = 6.12

500ml Poly	1	H_2SO_4
100ml Poly	1	$Na_2S_2O_8$

Groundwater Monitoring at U-Haul, Santa Rosa, CA

		PROJECT:		WELL NO.:		
		GROUNDWATER MONITORING AT U-HAUL CENTER, SANTA ROSA, CA.		MW-103		
WELL SAMPLING RECORD		SOTA PROJECT NO.:		SITE:		
		93HW014		3601 SANTA ROSA AVENUE U-HAUL CENTER, SANTA ROSA, CA.		
		PURGING CRITERIA:		LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
		(29.15 - 3.77) x .8 = 20.3		Yz		
HAND PUMP		REMARKS (eg. Well Condition, etc.):				
SUB. PUMP	X	CASING: <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Damaged				
BAILER		X	LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
VAC. TRUCK						
OTHER						
BOREHOLE DIAMETER: 8"		PURGING DATE: 5/20/05		DATE/TIME OF SAMPLING: 5/20/05 / 1140		
CASING DIAMETER (ID): 2"		WEATHER: Sunny				
REFERENCE POINT: Tex		BOREHOLE VOLUME:				
DEPTH TO:		ANALYSES: SEE COC				
WATER LEVEL: 3.77		ANALYSES CONTD:				
TOP OF FILTER PACK: -		SAMPLE CONTAINERS: SEE COC				
TOP OF SCREEN:		LABORATORY: Sequoia Laboratories				
BOTTOM OF SCREEN:		AIRBILL TRACKING NO.:				
BOREHOLE DEPTH: 29.15'						

PURGING DATA				CUMULATIVE TOTAL REMOVED		WATER QUALITY PARAMETERS								COMMENTS:
Date	Time Begun	Time Finished	Water Removed	Gallons	Well Volumes	pH	Conductivity (mS/cm)	Turbidity (Visual or NTU)	D.O. (mg/L)	Temp (°C)	Salinity (%)	Others		
5/20	1035	1044	21	21	1	6.7	695	11	2.6	20.3	0			
	1044	1053	42	42	2	6.6	714	8	4.8	20.4	0			
	1053	1058	Well	drawn	total	6.55	55	gallons						
9/20	1135	1140	-	-	-	6.8	776	7	3.2	19.4	0			

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled:	Sampling Device:	
1100	27.52	23.75	0	1140	Teflon Disposable Bailer	
1135	3.78	0	100%	Container(s)/Preservative(s):		
				Type	Qty.	Preserv.
				1 L. A.M.W.	6	HCl
				1 L. Poly	2	-
				500 mL Poly	1	-
				100 mL Poly	1	-

500 mL Poly 1 H2SO4
 100 mL Poly 1 N42 S208

Groundwater Monitoring at U-Haul, Santa Rosa, CA

			PROJECT:		WELL NO.:	
			GROUNDWATER MONITORING AT U-HAUL CENTER, SANTA ROSA, CA.		J-01	
WELL SAMPLING RECORD			SOTA PROJECT NO.:		SITE:	
			93HW014		3601 SANTA ROSA AVENUE U-HAUL CENTER, SANTA ROSA, CA.	
			PURGING CRITERIA:		LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
			(14.90 - 5.60) x 1.87 = 17.4		Y Z	
HAND PUMP			REMARKS (eg. Well Condition, etc.):			
SUB. PUMP	X		CASING: <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Damaged			
BAILER		X	LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
VAC. TRUCK						
OTHER						
BOREHOLE DIAMETER:			10"		PURGING DATE: 6/14/05	
CASING DIAMETER (ID):			4"		DATE/TIME OF SAMPLING: 6/14/05 1555	
REFERENCE POINT:			426		WEATHER: Sunny	
DEPTH TO:					BOREHOLE VOLUME:	
WATER LEVEL:			5.60		ANALYSES: SEE COC	
TOP OF FILTER PACK:					ANALYSES CONTD:	
TOP OF SCREEN:					SAMPLE CONTAINERS: SEE COC	
BOTTOM OF SCREEN:					LABORATORY: Sequoia Laboratories	
BOREHOLE DEPTH:			14.9'		AIRBILL TRACKING NO.:	

PURGING DATA				CUMULATIVE TOTAL REMOVED		WATER QUALITY PARAMETERS								COMMENTS:
Date	Time Begun	Time Finished	Water Removed	Gallons	Well Volumes	pH	Conductivity (mS/cm)	Turbidity (Visual or NTU)	D.O. (mg/L)	Temp (°C)	Salinity (%)	Others		
6/14	1447	1452	10	10	-	well Damaged prior to first purging								
6/14	1550	1555	-	-	-	6.6	258	80	2.9	22.0	Ø			

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled:	Sampling Device: Teflon Disposable Bailer	
1455	14.02	8.42	Ø	1555		
1555	6.65	1.05	90%	Container(s)/Preservative(s):		
				Type	Qty.	Preserv.
				Van 40mL	5	H2L
				AMB L	1	-
				11 L Poly	1	-

500 mL Poly 1 H2SO4
 100 mL Poly 2 N42S20P

80% = 7.46

Groundwater Monitoring at U-Haul, Santa Rosa, CA

		PROJECT:		WELL NO.:	
		GROUNDWATER MONITORING AT U-HAUL CENTER, SANTA ROSA, CA.		MW-103	
WELL SAMPLING RECORD		SOTA PROJECT NO.:		SITE:	
		93HW014		3601 SANTA ROSA AVENUE U-HAUL CENTER, SANTA ROSA, CA.	
		PURGING CRITERIA:		LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
		(29.02 - 5.42) x .8 = 18.9		XZ	
PURGE SAMPLING METHOD METHOD		REMARKS (eg. Well Condition, etc):			
HAND PUMP					
SUB. PUMP	X	CASING: <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Damaged			
BAILER	X	LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
VAC. TRUCK					
OTHER					
BOREHOLE DIAMETER:		8"		PURGING DATE: 6/14/05	
CASING DIAMETER (ID):		2"		DATE/TIME OF SAMPLING: 6/17/05 / 1540	
REFERENCE POINT:		TOL		WEATHER: Sunny	
DEPTH TO:				BOREHOLE VOLUME:	
WATER LEVEL:		5.42		ANALYSES: SEE COC	
TOP OF FILTER PACK:				ANALYSES CONTD:	
TOP OF SCREEN:				SAMPLE CONTAINERS: SEE COC	
BOTTOM OF SCREEN:				LABORATORY: Sequoia Laboratories	
BOREHOLE DEPTH:		29.15'		AIRBILL TRACKING NO.:	

PURGING DATA				CUMULATIVE TOTAL REMOVED		WATER QUALITY PARAMETERS								COMMENTS:
Date	Time Begun	Time Finished	Water Removed	Gallons	Well Volumes	pH	Conductivity (mS/cm)	Turbidity (Visual or NTU)	D.O. (mg/L)	Temp (°C)	Salinity (%)	Others		
6/14	1415	1423	19	19	1	6.8	791	10	2.4	20.9	0		color	
I	1423	1432	38	38	2	6.3	719	8	1.5	20.4	0			
I	1432	1435	44	well		detected	0	94	5.1					
6/17	1535	1540	-	-	-	6.8	801	7	3.5	20.1	0			

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled:	Sampling Device: Teflon Disposable Bailer	
1438	27.41	21.99	0	1540		
1535	5.45	0	100%	Container(s)/Preservative(s):		
				Type	Qty.	Preserv.
				600 mL poly	5	HCL
				100 mL poly	1	
				1L Poly	1	

500 mL poly 1 H₂SO₄
 100 mL poly 2 Na₂S₂O₈

Groundwater Monitoring at U-Haul, Santa Rosa, CA


[illegible]

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled: 1410		
				Sampling Device: Teflon Disposable Bailor		
1405	6.00	0.18	98%	Container(s)/Preservative(s):		
				Type	Qty.	Preserv.
				40 mL vial	5	DCU
				4MB L	1	-
				2L Poly	1	-

$$S_{\text{or}} = 4.68$$

500 mL Poly	1	H_2SO_4
1000 mL Poly	2	$Na_2S_2O_8$

Groundwater Monitoring at U-Haul, Santa Rosa, CA

				PROJECT: GROUNDWATER MONITORING AT U-HAUL CENTER, SANTA ROSA, CA.				WELL NO.: MW-2	
WELL SAMPLING RECORD				SOTA PROJECT NO.: 93HW014		SITE: 3601 SANTA ROSA AVENUE U-HAUL CENTER, SANTA ROSA, CA.		PREPARED BY: BM	
PURGE SAMPLING METHOD:				PURGING CRITERIA: $80\% = 10.47$ 24.04 $(29.70 - 5.66) \times 8 = 19.2$				LOCK: <input type="checkbox"/> Yes <input type="checkbox"/> No	
HAND PUMP				REMARKS (eg. Well Condition, etc):				CHECKED BY: YZ	
SUB. PUMP X				CASING: <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Damaged					
BAILER X				LOCK: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
VAC. TRUCK				$3/4$ bails missing, casing cracked \approx 2" long					
OTHER									
BOREHOLE DIAMETER: 8"				PURGING DATE: 6/29/05				DATE/TIME OF SAMPLING: 6/29/05 1225	
CASING DIAMETER (ID): 2"				WEATHER: Sunny, warm					
REFERENCE POINT:				BOREHOLE VOLUME:					
DEPTH TO:				ANALYSES: SEE COC					
WATER LEVEL: 5.66				ANALYSES CONTD:					
TOP OF FILTER PACK:				SAMPLE CONTAINERS: SEE COC					
TOP OF SCREEN:				LABORATORY: Sequoia Laboratories					
BOTTOM OF SCREEN:				AIRBILL TRACKING NO.:					
BOREHOLE DEPTH: 29.7'									

PURGING DATA				CUMULATIVE TOTAL REMOVED		WATER QUALITY PARAMETERS							COMMENTS:
Date	Time Begun	Time Finished	Water Removed	Gallons	Well Volumes	pH	Conductivity (mS/cm)	Turbidity (Visual or NTU)	D.O. (mg/L)	Temp (°C)	Salinity (%)	Others	
6/29	1054	1059	19.5	19.5	1	6.9	578	13	—	70.0	—		
	1059	1105	39	39	2	6.7	572	7	—	69.8	—		
	1105	1112	58.5	58.5	3	6.7	562	7	—	69.7	—		
						PRE D.O. = 1.2 mg/L		POST D.O. = 7.9 mg/L					

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled:	Sampling Device: Teflon Disposable Bailor	
1115	16.66	10.00	280%	1225	Container(s)/Preservative(s):	
1220	5.86	6.20	880%	Type	Qty.	Preserv.
				40 ml VOCs	6	AC-1
				Amb L	2	NP
				L Poly	1	NP

44 1111

500 poly

1


H₂SO₄

100 poly

1

Na₂S₂O₈

Groundwater Monitoring at U-Haul, Santa Rosa, CA

		PROJECT: GROUNDWATER MONITORING AT U-HAUL CENTER, SANTA ROSA, CA.		WELL NO.: MW-103	
WELL SAMPLING RECORD		SOTA PROJECT NO.: 93HW014		SITE: 3601 SANTA ROSA AVENUE U-HAUL CENTER, SANTA ROSA, CA.	
PURGE SAMPLING METHOD		PURGING CRITERIA: $23.22 \times 0.8 = 18.6$ $(28.99 - 5.77) \times 0.8 = 18.6$		LOCK: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
HAND PUMP		REMARKS (eg. Well Condition, etc.):		CHECKED BY: YZ	
SUB. PUMP X		CASING: <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Damaged			
BAILER X		LOCK: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No			
VAC. TRUCK		3/8 bailer missing			
OTHER					
BOREHOLE DIAMETER: 8"		PURGING DATE: 6/29/05		DATE/TIME OF SAMPLING: 6/29/05 1210	
CASING DIAMETER (ID): 2"		WEATHER: Sunny, warm			
REFERENCE POINT:		BOREHOLE VOLUME:			
DEPTH TO:		ANALYSES: SEE COC			
WATER LEVEL: 5.77		ANALYSES CONTD:			
TOP OF FILTER PACK:		SAMPLE CONTAINERS: SEE COC			
TOP OF SCREEN:		LABORATORY: Sequoia Laboratories			
BOTTOM OF SCREEN:		AIRBILL TRACKING NO.:			
BOREHOLE DEPTH: 29.15'					

PURGING DATA				CUMULATIVE TOTAL REMOVED		WATER QUALITY PARAMETERS							COMMENTS:
Date	Time Begun	Time Finished	Water Removed	Gallons	Well Volumes	pH	Conductivity (mS/cm)	Turbidity (Visual or NTU)	D.O. (mg/L)	Temp (°C)	Salinity (%)	Others	
6/29	1015	1027	18.5	18.5	1	6.8	708	10	1.0	68.3	—		
	1027	1037	35	35	2	6.8	721	8	—	68.4	—		
	1037	1047	56	56	3	6.8	725	8	—	68.8	—		
						PRE D.O. = 1.0 mg/L							
						POST D.O. = 2.0 mg/L							

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled:	Sampling Device:	Container(s)/Preservative(s):
1040	18.80	13.03	< 80%	1210	Teflon Disposable Bailer	40 L
1205	6.25	6.48	> 80%			1/2 L
						NP
						NP
						NP

HA 1H

500 Poly 1 1/2 504
100 Poly 1 Na₂S₂O₈

Groundwater Monitoring at U-Haul, Santa Rosa, CA

		PROJECT:		WELL NO.:	
		GROUNDWATER MONITORING AT U-HAUL CENTER, SANTA ROSA, CA.		J-01	
WELL SAMPLING RECORD		SOTA PROJECT NO.:		SITE:	
		93HW014		3601 SANTA ROSA AVENUE U-HAUL CENTER, SANTA ROSA, CA.	
		PURGING CRITERIA:		LOCK: <input type="checkbox"/> Yes <input type="checkbox"/> No	
		$\frac{8.68}{(14.82 - 6.14)} \times 1.87 = 16.2$		$80\% = 7.88$	
		PURGE SAMPLING METHOD		CHECKED BY:	
				YB	
HAND PUMP		REMARKS (eg. Well Condition, etc):			
SUB. PUMP		CASING: <input type="checkbox"/> Intact <input type="checkbox"/> Damaged			
BAILER		LOCK: <input type="checkbox"/> Yes <input type="checkbox"/> No			
VAC. TRUCK		has wrong lid - needs directed lid			
OTHER					
BOREHOLE DIAMETER:		10"		PURGING DATE: 6/29/05	
CASING DIAMETER (ID):		4"		DATE/TIME OF SAMPLING: 6/29/05 12:35	
REFERENCE POINT:		WEATHER: Sunny warm			
DEPTH TO:		BOREHOLE VOLUME:			
WATER LEVEL:		ANALYSES: SEE COC			
TOP OF FILTER PACK:		ANALYSES CONTD:			
TOP OF SCREEN:		SAMPLE CONTAINERS: SEE COC			
BOTTOM OF SCREEN:		LABORATORY: Sequoia Laboratories			
BOREHOLE DEPTH:		AIRBILL TRACKING NO.:			
14.9'					

PURGING DATA				CUMULATIVE TOTAL REMOVED		WATER QUALITY PARAMETERS								COMMENTS:
Date	Time Begun	Time Finished	Water Removed	Gallons	Well Volumes	pH	Conductivity (mS/cm)	Turbidity (Visual or NTU)	D.O. (mg/L)	Temp (°C)	Salinity (%)	Others		
6/29	11:18	11:20	used clewateel & 7 gallons											
						12:35	7.0	1070	11	71.1				
PRE D.O. = 6.2 mg/L POST D.O. = 2.8 mg/L														

RECOVERY				SAMPLING		
Time of Measurement	Depth to Water (ft)	Residual Drawdown	Percent Recovery	Time Sampled:	Sampling Device:	
11:24	14.02	7.88	85	12:35	Fenton Disposable Bailer	
12:30	6.31	0.17	> 80%	Container(s)/Preservative(s):		
				Type	Qty.	Preserv.
				40 Vol	6	HCl
				Ambs L	2	NP
				Poly L	1	NP

500 poly 1 H₂SO₄
100 poly 1 Na₂SO₄

SOTA Environmental Technology, Inc.

BAKER TANK PARAMETERS

pH

COND

Temp

Turb

sample time

Report of Findings
Evaluation of Ozone and Peroxone
for the Destruction of Petroleum Hydrocarbons

U-Haul Santa Rosa

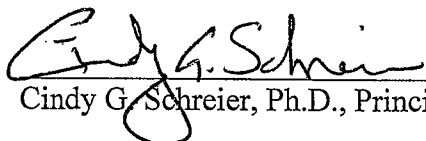
July 6, 2005

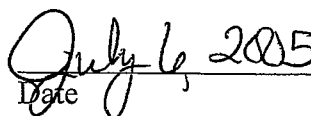
Submitted to

Yu Zeng, Ph.D.
SOTA Environmental
16835 West Bernardo Drive, Ste 212
San Diego, CA 92127

Submitted by

Cindy G. Schreier, Ph.D.
PRIMA Environmental
10265 Old Placerville Road, Suite 15
Sacramento, CA 95827


Cindy G. Schreier, Ph.D., Principal


Date

EXECUTIVE SUMMARY

Bench-scale testing conducted on soil RW-2 from the U-Haul Santa Rosa site in Santa Rosa, California. Bench testing compared the abilities of ozone and Peroxone (a mixture of ozone and hydrogen peroxide, H_2O_2) to destroy petroleum hydrocarbons in soil. The specific contaminants of concern were diesel range total petroleum hydrocarbons (TPH-d) and gasoline range total petroleum hydrocarbons (TPH-g).

Peroxone and ozone both decreased the concentration of TPH-d in soil and water. Ozone alone was marginally more effective than Peroxone, but the results should be viewed with caution due to the low concentrations of hydrocarbons initially present and the small differences between the ozone and Peroxone test results.

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1.0 INTRODUCTION

Bench-scale testing conducted on soil RW-2 from the U-Haul Santa Rosa site in Santa Rosa, California. Bench testing compared the abilities of ozone and Peroxone (a mixture of ozone and hydrogen peroxide, H_2O_2) to destroy petroleum hydrocarbons in soil. The specific contaminants of concern were diesel range total petroleum hydrocarbons (TPH-d) and gasoline range total petroleum hydrocarbons (TPH-g).

Ozone and Peroxone are strong oxidants that can destroy a wide range of organic compounds, including petroleum hydrocarbons. In principal, compounds may be completely mineralized to carbon dioxide and water. For ozone, oxidation may occur by direct reaction between ozone and the petroleum hydrocarbon or possibly indirectly by hydroxyl and other radicals that are formed by reaction between ozone and iron (or other metals) naturally present in soil. (Bower, K. C. and C. M. Miller. "Filter Sand-Phosphate Buffer Effect on 2,4-Dinitrotoluene Ozonation," *J. Environ. Eng.* February 2002, 131-136, and references therein.) Oxidation by Peroxone is also believed to occur via the formation of hydroxyl and other radicals, which are even stronger oxidants than either constituent of Peroxone. The amount of ozone or Peroxone needed cannot be determined a priori due to the complex nature of the reaction and because TPH-g and TPH-d are complex mixtures.

The specific goals of the bench-scale testing were to

- estimate longevity of H_2O_2 in presence of site soil
- confirm removal of COCs
- compare the effectiveness of ozone versus Peroxone

2.0 EXPERIMENTAL PROCEDURES

2.1 Sample Preparation and Characterization

Soil sample RW-2 (15' bgs to 19.5' bgs) was received on May 13, 2005 in 9 6-inch brass sleeves. The soil was composited then analyzed for TPH-g, TPH-d, chemical oxygen demand (COD) and TCLP (TPH-g and TPH-d). All testing was conducted on composited soil.

2.2 Longevity of H₂O₂

A test was conducted to measure the rate of off-gas formation by H₂O₂. H₂O₂ decomposes to form oxygen gas and water. The rate of off-gas formation is approximately equal to the rate of H₂O₂ decomposition and therefore can be used as an estimate of the longevity of H₂O₂.

Site soil (20 g) was combined with 100 mL deionized (DI) water and 30% H₂O₂ in an Erlenmeyer flask such that the initial concentration of H₂O₂ was either 0.1% or 1%. The flask was connected to an inverted container filled with water. As off-gases were generated, the water was displaced. The amount of water displaced was measured as a function of time.

2.3 Evaluation of Hydrocarbon Removal

To determine whether ozone and Peroxone could destroy petroleum hydrocarbons in site soil, three batch tests were conducted. For each test, soil, DI water and H₂O₂ were combined in a 10:1 liquid to soil ratio (Table 1). The H₂O₂ dose was based on the results of the H₂O₂ longevity test in Section 2.2. The ozone and Peroxone tests were each fitted with a gas dispersion tube and vent for off-gases then sparged with ozone (26 mg O₃/L in air; 1.2% v/v) at a flowrate of 250 mL/min for 6 hours. (The duration of the test was somewhat arbitrary, but was based on PRIMA's experience and the expectation that soil would contain 100-1000 mg/kg TPH.) The third reactor was capped and served as the control. At the end of the test, the soil and water phases were separated via centrifugation and each analyzed for TPH-g, TPH-d, and COD.

Table 1. Initial Conditions for Evaluation of Hydrocarbon Removal Tests

Test ID	Soil g	DI Water mL	30%H ₂ O ₂ mL	Ozone* mL/min
Control	400	2000	0	0
Ozone	400	2000	0	250
Peroxone	375	1813	62**	250

* Concentration = 26 mg O₃/L in air (~1.2% v/v)

** Initial H₂O₂ concentration = 1%

2.4 Analytical Procedures

The analytical methods used in this study and the laboratory performing each test are shown in Table 2.

Table 2. Analytical Methods

Analyte	Method	Laboratory Performing Test
TPH-g	8015B Gasoline	Associated Laboratories
TPH-d	8015 TEPH Diesel	Associated Laboratories
COD	410.4	Associated Laboratories
TCLP		Associated Laboratories

3.0 RESULTS AND DISCUSSION

The results of the bench testing suggest that Peroxone may be marginally more effective than ozone alone, but the results should be viewed with caution due to the low concentrations of hydrocarbons initially present and the small differences in between the ozone and Peroxone test results.

3.1 Characterization of Untreated Soil

The concentrations of hydrocarbons in composited, untreated soil and in TCLP extracts from the soil are shown in Table 3. The TPH concentrations in soil were 2.2 and 11 mg/kg for TPH-d and TPH-g, respectively, which were much lower than anticipated. TPH-d and TPH-g were also detected in TCLP extracts.

Table 3. Concentrations in Untreated Soil and TCLP Extract

Analyte	Units	Untreated Soil	TCLP Extract
COD	ppm	7500	n.m.
TPH-d	ppm	2.2	0.16
TPH-g	ppm	11	0.396

3.2 Longevity of H₂O₂

The rate of off-gas formation upon exposure of soil and DI water to H₂O₂ is shown in Figure 1. Most of the off-gases were generated within 30 minutes when 0.1% H₂O₂ was used and within 3 hours when 1% H₂O₂ was used. The volume of off-gases generated was 0.27 L/L soln. for the 0.1% H₂O₂ test and 3.8 L/L soln. These values were similar to the theoretical volumes of 0.33 and 3.3 L/L solution, respectively. Based on these results, 1% H₂O₂ was used in the Peroxone test, since it persisted longer.

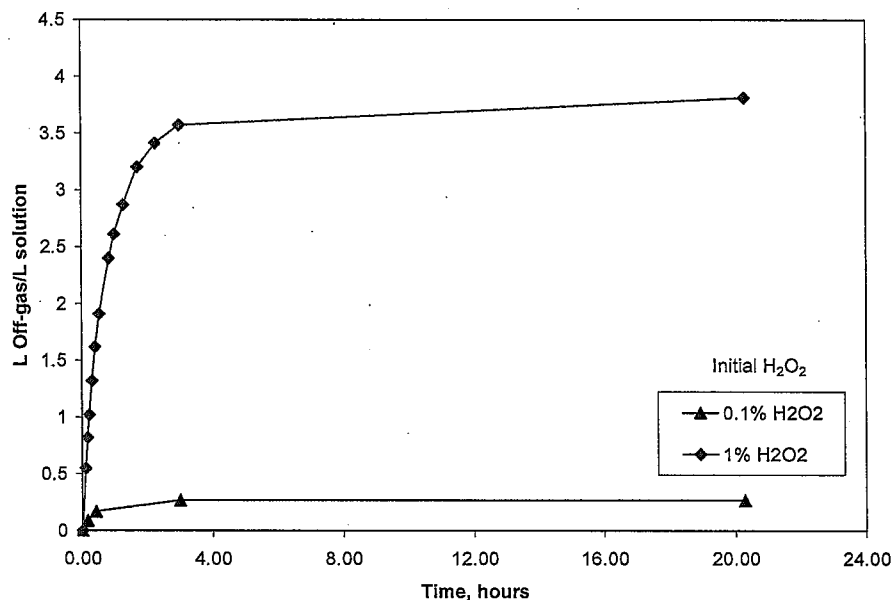


Figure 1. Rate of Off-gas Formation

3.3 Hydrocarbon Removal

The results of the hydrocarbon removal tests are shown in Table 4. TPH-d was detected in soil from the control test, though the concentration was at the reporting limit. TPH-d was not detected in soil from either the ozone or Peroxone tests. Compared to the control test, TPH-d was completely removed from the aqueous phase of the ozone test and 40% removed from the Peroxone test, suggesting that ozone is slightly more effective than Peroxone. However, because the concentration in the Peroxone test was near the detection limit, the difference between ozone and Peroxone should be viewed with caution. TPH-g was not detected in any case. Soil COD ranged from 3,000 to 3,600 mg/kg. The COD in the ozone test was greater than in the control, while the COD in the Peroxone test was lower than in the control. Thus, the differences in COD are probably due to natural variation within the soil, rather to an effect of treatment.

Table 4. Concentrations of Hydrocarbons in Ozone and Peroxone Tests.

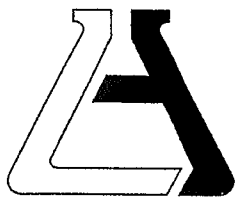
Analyte	Units	Soil Concentrations			Aqueous Concentrations		
		Control	Ozone	Peroxone	Control	Ozone	Peroxone
COD	ppm	3300	3600	3000	n.m.	n.m.	n.m.
TPH-d	ppm	1	< 1	< 1	0.25	< 0.1	0.15
TPH-g	ppm	< 3	< 3	< 3	< 0.05	< 0.05	< 0.05

Notes:

- ppm = mg/kg for soil and mg/L for water
- n.m. = not measured

4.0 CONCLUSIONS

Peroxone and ozone both decreased the concentration of TPH-d in soil and water. Ozone alone was marginally more effective than Peroxone, but the results should be viewed with caution due to the low concentrations of hydrocarbons initially present and the small differences between the ozone and Peroxone test results.



ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92868 - 714/771-6900

FAX 714/538-1209

CLIENT SOTA Environmental Technology, Inc. (11300)
ATTN: Yu Zeng
5151 Shoreham Place
Suite 260
San Diego, CA 92122

LAB REQUEST 151330

REPORTED 06/10/2005

RECEIVED 06/01/2005

PROJECT SOTA - Ozone Evaluation

SUBMITTER Client

COMMENTS * Matrix Interference.

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods as indicated on the report. This cover letter is an integral part of the final report.

<u>Order No.</u>	<u>Client Sample Identification</u>
624422	SOTA-Original Soil
624423	SOTA-Control-S
624424	SOTA-03-S
624425	SOTA-Peroxone-S
624426	SOTA-Original Soil TCLP
624427	SOTA-Control-S TCLP
624428	SOTA-03-S TCLP
624429	SOTA-Peroxone-S TCLP
624430	COC-C
624431	COC-03
624432	COC-Peroxone
624434	Laboratory Method Blank-S

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

ASSOCIATED LABORATORIES by,

Edward S. Behare, Ph.D.
Vice President

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

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TESTING & CONSULTING
Chemical
Microbiological
Environmental



ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92868 - 714/771-6900

FAX 714/538-1209

CLIENT SOTA Environmental Technology, Inc. (11300)

ATTN: Yu Zeng

5151 Shoreham Place

Suite 260

San Diego, CA 92122

LAB REQUEST 151330

REPORTED 06/10/2005

RECEIVED 06/01/2005

PROJECT SOTA - Ozone Evaluation

SUBMITTER Client

COMMENTS * Matrix Interference.

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods as indicated on the report. This cover letter is an integral part of the final report.

Order No.
624435

Client Sample Identification
Laboratory Method Blank-W

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

ASSOCIATED LABORATORIES by,

Edward S. Behare, Ph.D.
Vice President

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

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TESTING & CONSULTING
Chemical
Microbiological
Environmental

Order #: 624423

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Control-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	3300	1	5.0	mg/Kg	06/07/05	LT
------------------------	------	---	-----	-------	----------	----

8015 TEPH Diesel

TEPH Diesel	1.0	1	1.0	mg/Kg	06/03/05	AF
-------------	-----	---	-----	-------	----------	----

Surrogates

				Units	Control Limits
o-Terphenyl (sur)	83			%	55 - 200

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethene	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloropropene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromoethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1-Chlorohexane	ND	1	5	ug/Kg	06/04/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624423

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Control-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05 DP
2-Butanone (MEK)	ND	1	100	ug/Kg	06/04/05 DP
2-Chloroethyl vinyl ether	ND	1	5	ug/Kg	06/04/05 DP
2-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
2-Hexanone	ND	1	5	ug/Kg	06/04/05 DP
4-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	5	ug/Kg	06/04/05 DP
Acetone	ND	1	50	ug/Kg	06/04/05 DP
Acetonitrile	ND	1	5	ug/Kg	06/04/05 DP
Acrolein	ND	1	200	ug/Kg	06/04/05 DP
Acrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Allyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Benzene	ND	1	5	ug/Kg	06/04/05 DP
Benzyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Bromobenzene	ND	1	5	ug/Kg	06/04/05 DP
Bromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromodichloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromoform	ND	1	5	ug/Kg	06/04/05 DP
Bromomethane	ND	1	5	ug/Kg	06/04/05 DP
Carbon Disulfide	ND	1	5	ug/Kg	06/04/05 DP
Carbon tetrachloride	ND	1	5	ug/Kg	06/04/05 DP
Chlorobenzene	ND	1	5	ug/Kg	06/04/05 DP
Chloroethane	ND	1	5	ug/Kg	06/04/05 DP
Chloroform	ND	1	5	ug/Kg	06/04/05 DP
Chloromethane	ND	1	5	ug/Kg	06/04/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Dibromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Dibromomethane	ND	1	5	ug/Kg	06/04/05 DP
Dichlorodifluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Ethyl benzene	ND	1	5	ug/Kg	06/04/05 DP
Ethyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624423

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Control-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Hexachlorobutadiene	ND	1	5	ug/Kg	06/04/05 DP
Iodomethane	ND	1	5	ug/Kg	06/04/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/Kg	06/04/05 DP
m and p-Xylene	ND	1	5	ug/Kg	06/04/05 DP
Methacrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Methyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP
Methyl-tert-butylether (MTBE)	ND	1	5	ug/Kg	06/04/05 DP
Methylene chloride	ND	1	5	ug/Kg	06/04/05 DP
n-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
n-Propylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Naphthalene	ND	1	5	ug/Kg	06/04/05 DP
o-Xylene	ND	1	5	ug/Kg	06/04/05 DP
p-Isopropyltoluene	ND	1	5	ug/Kg	06/04/05 DP
Pentachloroethane	ND	1	5	ug/Kg	06/04/05 DP
Propionitrile	ND	1	5	ug/Kg	06/04/05 DP
sec-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Styrene	ND	1	5	ug/Kg	06/04/05 DP
tert-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Tetrachloroethene	ND	1	5	ug/Kg	06/04/05 DP
Toluene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Trichloroethene	ND	1	5	ug/Kg	06/04/05 DP
Trichlorofluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Vinyl acetate	ND	1	50	ug/Kg	06/04/05 DP
Vinyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Xylenes, total	ND	1	5	ug/Kg	06/04/05 DP
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	96			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	106			%	70 - 135
Surr3 - Toluene-d8	103			%	70 - 135

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624423

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Control-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Surr4 - p-Bromofluorobenzene	107			%	70 - 135

8015B - Gasoline

Gasoline	ND	1	3	mg/Kg	06/07/05	LT
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	116			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624424

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-03-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	3600	1	5.0	mg/Kg	06/07/05	LT
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8015 TEPH Diesel

TEPH Diesel	ND	1	1.0	mg/Kg	06/03/05	AF
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Surrogates

				Units	Control Limits
o-Terphenyl (sur)	98			%	55 - 200

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethene	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloropropene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromoethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1-Chlorohexane	ND	1	5	ug/Kg	06/04/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624424

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-03-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05 DP
2-Butanone (MEK)	ND	1	100	ug/Kg	06/04/05 DP
2-Chloroethyl vinyl ether	ND	1	5	ug/Kg	06/04/05 DP
2-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
2-Hexanone	ND	1	5	ug/Kg	06/04/05 DP
4-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	5	ug/Kg	06/04/05 DP
Acetone	ND	1	50	ug/Kg	06/04/05 DP
Acetonitrile	ND	1	5	ug/Kg	06/04/05 DP
Acrolein	ND	1	200	ug/Kg	06/04/05 DP
Acrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Allyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Benzene	ND	1	5	ug/Kg	06/04/05 DP
Benzyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Bromobenzene	ND	1	5	ug/Kg	06/04/05 DP
Bromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromodichloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromoform	ND	1	5	ug/Kg	06/04/05 DP
Bromomethane	ND	1	5	ug/Kg	06/04/05 DP
Carbon Disulfide	ND	1	5	ug/Kg	06/04/05 DP
Carbon tetrachloride	ND	1	5	ug/Kg	06/04/05 DP
Chlorobenzene	ND	1	5	ug/Kg	06/04/05 DP
Chloroethane	ND	1	5	ug/Kg	06/04/05 DP
Chloroform	ND	1	5	ug/Kg	06/04/05 DP
Chloromethane	ND	1	5	ug/Kg	06/04/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Dibromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Dibromomethane	ND	1	5	ug/Kg	06/04/05 DP
Dichlorodifluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Ethyl benzene	ND	1	5	ug/Kg	06/04/05 DP
Ethyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624424

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-03-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Hexachlorobutadiene	ND	1	5	ug/Kg	06/04/05 DP
Iodomethane	ND	1	5	ug/Kg	06/04/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/Kg	06/04/05 DP
m and p-Xylene	ND	1	5	ug/Kg	06/04/05 DP
Methacrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Methyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP
Methyl-tert-butylether (MTBE)	ND	1	5	ug/Kg	06/04/05 DP
Methylene chloride	ND	1	5	ug/Kg	06/04/05 DP
n-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
n-Propylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Naphthalene	ND	1	5	ug/Kg	06/04/05 DP
o-Xylene	ND	1	5	ug/Kg	06/04/05 DP
p-Isopropyltoluene	ND	1	5	ug/Kg	06/04/05 DP
Pentachloroethane	ND	1	5	ug/Kg	06/04/05 DP
Propionitrile	ND	1	5	ug/Kg	06/04/05 DP
sec-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Styrene	ND	1	5	ug/Kg	06/04/05 DP
tert-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Tetrachloroethene	ND	1	5	ug/Kg	06/04/05 DP
Toluene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Trichloroethene	ND	1	5	ug/Kg	06/04/05 DP
Trichlorofluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Vinyl acetate	ND	1	50	ug/Kg	06/04/05 DP
Vinyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Xylenes, total	ND	1	5	ug/Kg	06/04/05 DP

Surrogates

		Units	Control Limits
Surr1 - Dibromofluoromethane	98	%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	108	%	70 - 135
Surr3 - Toluene-d8	104	%	70 - 135

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624424

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-03-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Surr4 - p-Bromofluorobenzene	109			%	70 - 135

8015B - Gasoline

Gasoline	ND	1	3	mg/Kg	06/07/05	LT
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	83			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624425

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Peroxone-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	3000	1	5.0	mg/Kg	06/07/05	LT
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8015 TEPH Diesel

TEPH Diesel	ND	1	1.0	mg/Kg	06/03/05	AF
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Surrogates

				Units	Control Limits
o-Terphenyl (sur)	121			%	55 - 200

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethene	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloropropene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromoethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1-Chlorohexane	ND	1	5	ug/Kg	06/04/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624425

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Peroxone-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05 DP
2-Butanone (MEK)	ND	1	100	ug/Kg	06/04/05 DP
2-Chloroethyl vinyl ether	ND	1	5	ug/Kg	06/04/05 DP
2-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
2-Hexanone	ND	1	5	ug/Kg	06/04/05 DP
4-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	5	ug/Kg	06/04/05 DP
Acetone	ND	1	50	ug/Kg	06/04/05 DP
Acetonitrile	ND	1	5	ug/Kg	06/04/05 DP
Acrolein	ND	1	200	ug/Kg	06/04/05 DP
Acrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Allyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Benzene	ND	1	5	ug/Kg	06/04/05 DP
Benzyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Bromobenzene	ND	1	5	ug/Kg	06/04/05 DP
Bromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromodichloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromoform	ND	1	5	ug/Kg	06/04/05 DP
Bromomethane	ND	1	5	ug/Kg	06/04/05 DP
Carbon Disulfide	ND	1	5	ug/Kg	06/04/05 DP
Carbon tetrachloride	ND	1	5	ug/Kg	06/04/05 DP
Chlorobenzene	ND	1	5	ug/Kg	06/04/05 DP
Chloroethane	ND	1	5	ug/Kg	06/04/05 DP
Chloroform	ND	1	5	ug/Kg	06/04/05 DP
Chloromethane	ND	1	5	ug/Kg	06/04/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Dibromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Dibromomethane	ND	1	5	ug/Kg	06/04/05 DP
Dichlorodifluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Ethyl benzene	ND	1	5	ug/Kg	06/04/05 DP
Ethyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624425

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Peroxone-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Hexachlorobutadiene	ND	1	5	ug/Kg	06/04/05 DP
Iodomethane	ND	1	5	ug/Kg	06/04/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/Kg	06/04/05 DP
m and p-Xylene	ND	1	5	ug/Kg	06/04/05 DP
Methacrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Methyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP
Methyl-tert-butylether (MTBE)	ND	1	5	ug/Kg	06/04/05 DP
Methylene chloride	ND	1	5	ug/Kg	06/04/05 DP
n-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
n-Propylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Naphthalene	ND	1	5	ug/Kg	06/04/05 DP
o-Xylene	ND	1	5	ug/Kg	06/04/05 DP
p-Isopropyltoluene	ND	1	5	ug/Kg	06/04/05 DP
Pentachloroethane	ND	1	5	ug/Kg	06/04/05 DP
Propionitrile	ND	1	5	ug/Kg	06/04/05 DP
sec-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Styrene	ND	1	5	ug/Kg	06/04/05 DP
tert-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Tetrachloroethene	ND	1	5	ug/Kg	06/04/05 DP
Toluene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Trichloroethene	ND	1	5	ug/Kg	06/04/05 DP
Trichlorofluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Vinyl acetate	ND	1	50	ug/Kg	06/04/05 DP
Vinyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Xylenes, total	ND	1	5	ug/Kg	06/04/05 DP
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	96			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	105			%	70 - 135
Surr3 - Toluene-d8	103			%	70 - 135

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624425

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: SOTA-Peroxone-S

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Surr4 - p-Bromofluorobenzene	102			%	70 - 135
8015B - Gasoline					
Gasoline	ND	1	3	mg/Kg	06/07/05 LT
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	79			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624426

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: SOTA-Original Soil TCLP

Date Sampled: 05/27/2005

Time Sampled: 14:15

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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8015 TEPH Diesel

TEPH Diesel	0.16	1	0.1	mg/L	06/06/05 AF
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Surrogates

Units	Control Limits
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o-Terphenyl (sur)	181	%	55 - 200
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8015B - Gasoline

Gasoline	396	1	50	ug/L	06/09/05 WL
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Surrogates

Units	Control Limits
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a,a,a-Trifluorotoluene	120	%	55 - 200
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624430

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-C

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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8015 TEPH Diesel

TEPH Diesel	0.25	1	0.1	mg/L	06/04/05	AF
Surrogates				Units	Control Limits	
o-Terphenyl (sur)	105			%	55 - 200	

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethene	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloropropene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromoethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1-Chlorohexane	ND	1	5	ug/L	06/03/05	DP
2,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
2-Butanone (MEK)	ND	1	100	ug/L	06/03/05	DP
2-Chloroethyl vinyl ether	ND	1	5	ug/L	06/03/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624430

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-C

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
2-Hexanone	ND	1	20	ug/L	06/03/05 DP
4-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	10	ug/L	06/03/05 DP
Acetone	ND	1	100	ug/L	06/03/05 DP
Acetonitrile	ND	1	50	ug/L	06/03/05 DP
Acrolein	ND	1	200	ug/L	06/03/05 DP
Acrylonitrile	ND	1	10	ug/L	06/03/05 DP
Allyl chloride	ND	1	5	ug/L	06/03/05 DP
Benzene	ND	1	1	ug/L	06/03/05 DP
Benzyl chloride	ND	1	5	ug/L	06/03/05 DP
Bromobenzene	ND	1	5	ug/L	06/03/05 DP
Bromochloromethane	ND	1	5	ug/L	06/03/05 DP
Bromodichloromethane	ND	1	5	ug/L	06/03/05 DP
Bromoform	ND	1	5	ug/L	06/03/05 DP
Bromomethane	ND	1	5	ug/L	06/03/05 DP
Carbon Disulfide	ND	1	5	ug/L	06/03/05 DP
Carbon tetrachloride	ND	1	5	ug/L	06/03/05 DP
Chlorobenzene	ND	1	5	ug/L	06/03/05 DP
Chloroethane	ND	1	5	ug/L	06/03/05 DP
Chloroform	ND	1	5	ug/L	06/03/05 DP
Chloromethane	ND	1	5	ug/L	06/03/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
cis-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Dibromochloromethane	ND	1	5	ug/L	06/03/05 DP
Dibromomethane	ND	1	5	ug/L	06/03/05 DP
Dichlorodifluoromethane	ND	1	5	ug/L	06/03/05 DP
Ethyl benzene	ND	1	5	ug/L	06/03/05 DP
Ethyl methacrylate	ND	1	50	ug/L	06/03/05 DP
Hexachlorobutadiene	ND	1	5	ug/L	06/03/05 DP
Iodomethane	ND	1	5	ug/L	06/03/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/L	06/03/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624430

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-C

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
Methacrylonitrile	ND	1	35	ug/L	06/03/05 DP
Methyl methacrylate	ND	1	5	ug/L	06/03/05 DP
Methyl-tert-butylether (MTBE)	3.5	1	1	ug/L	06/03/05 DP
Methylene chloride	ND	1	5	ug/L	06/03/05 DP
n-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
n-Propylbenzene	ND	1	5	ug/L	06/03/05 DP
Naphthalene	ND	1	5	ug/L	06/03/05 DP
p-Isopropyltoluene	ND	1	5	ug/L	06/03/05 DP
Pentachloroethane	ND	1	5	ug/L	06/03/05 DP
Propionitrile	ND	1	100	ug/L	06/03/05 DP
sec-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Styrene	ND	1	5	ug/L	06/03/05 DP
tert-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Tetrachloroethene	ND	1	5	ug/L	06/03/05 DP
Toluene	ND	1	5	ug/L	06/03/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
trans-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Trichloroethene	ND	1	5	ug/L	06/03/05 DP
Trichlorofluoromethane	ND	1	5	ug/L	06/03/05 DP
Vinyl acetate	ND	1	50	ug/L	06/03/05 DP
Vinyl chloride	ND	1	5	ug/L	06/03/05 DP
Xylenes, total	8.2	1	5	ug/L	06/03/05 DP
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	91			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	106			%	70 - 135
Surr3 - Toluene-d8	103			%	70 - 135
Surr4 - p-Bromofluorobenzene	95			%	70 - 135

8015B - Gasoline

Gasoline	ND	1	50	ug/L	06/04/05 WL
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624430

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-C

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8015B - Gasoline					
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	295*			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624431

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-03

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8015 TEPH Diesel	ND	1	0.1	mg/L	06/04/05 AF
Surrogates				Units	Control Limits
o-Terphenyl (sur)	91			%	55 - 200

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethene	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloropropene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromoethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1-Chlorohexane	ND	1	5	ug/L	06/03/05	DP
2,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
* 2-Butanone (MEK)	ND	1	100	ug/L	06/03/05	DP
2-Chloroethyl vinyl ether	ND	1	5	ug/L	06/03/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624431

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-03

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
2-Hexanone	ND	1	20	ug/L	06/03/05 DP
4-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	10	ug/L	06/03/05 DP
Acetone	ND	1	100	ug/L	06/03/05 DP
Acetonitrile	ND	1	50	ug/L	06/03/05 DP
Acrolein	ND	1	200	ug/L	06/03/05 DP
Acrylonitrile	ND	1	10	ug/L	06/03/05 DP
Allyl chloride	ND	1	5	ug/L	06/03/05 DP
Benzene	ND	1	1	ug/L	06/03/05 DP
Benzyl chloride	ND	1	5	ug/L	06/03/05 DP
Bromobenzene	ND	1	5	ug/L	06/03/05 DP
Bromochloromethane	ND	1	5	ug/L	06/03/05 DP
Bromodichloromethane	ND	1	5	ug/L	06/03/05 DP
Bromoform	ND	1	5	ug/L	06/03/05 DP
Bromomethane	ND	1	5	ug/L	06/03/05 DP
Carbon Disulfide	ND	1	5	ug/L	06/03/05 DP
Carbon tetrachloride	ND	1	5	ug/L	06/03/05 DP
Chlorobenzene	ND	1	5	ug/L	06/03/05 DP
Chloroethane	ND	1	5	ug/L	06/03/05 DP
Chloroform	ND	1	5	ug/L	06/03/05 DP
Chloromethane	ND	1	5	ug/L	06/03/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
cis-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Dibromochloromethane	ND	1	5	ug/L	06/03/05 DP
Dibromomethane	ND	1	5	ug/L	06/03/05 DP
Dichlorodifluoromethane	ND	1	5	ug/L	06/03/05 DP
Ethyl benzene	ND	1	5	ug/L	06/03/05 DP
Ethyl methacrylate	ND	1	50	ug/L	06/03/05 DP
Hexachlorobutadiene	ND	1	5	ug/L	06/03/05 DP
Iodomethane	ND	1	5	ug/L	06/03/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/L	06/03/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624431

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-03

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
m and p-Xylene	ND	1	5	ug/L	06/03/05 DP
Methacrylonitrile	ND	1	35	ug/L	06/03/05 DP
Methyl methacrylate	ND	1	5	ug/L	06/03/05 DP
Methyl-tert-butylether (MTBE)	ND	1	1	ug/L	06/03/05 DP
Methylene chloride	ND	1	5	ug/L	06/03/05 DP
n-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
n-Propylbenzene	ND	1	5	ug/L	06/03/05 DP
Naphthalene	ND	1	5	ug/L	06/03/05 DP
o-Xylene	ND	1	5	ug/L	06/03/05 DP
p-Isopropyltoluene	ND	1	5	ug/L	06/03/05 DP
Pentachloroethane	ND	1	5	ug/L	06/03/05 DP
Propionitrile	ND	1	100	ug/L	06/03/05 DP
sec-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Styrene	ND	1	5	ug/L	06/03/05 DP
tert-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Tetrachloroethene	ND	1	5	ug/L	06/03/05 DP
Toluene	ND	1	5	ug/L	06/03/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
trans-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Trichloroethene	ND	1	5	ug/L	06/03/05 DP
Trichlorofluoromethane	ND	1	5	ug/L	06/03/05 DP
Vinyl acetate	ND	1	50	ug/L	06/03/05 DP
Vinyl chloride	ND	1	5	ug/L	06/03/05 DP
Xylenes, total	ND	1	5	ug/L	06/03/05 DP
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	80			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	110			%	70 - 135
Surr3 - Toluene-d8	102			%	70 - 135
Surr4 - p-Bromofluorobenzene	91			%	70 - 135

8015B - Gasoline

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624431

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-03

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8015B - Gasoline					
Gasoline	ND	1	50	ug/L	06/04/05 WL
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	71			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624432

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-Peroxone

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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8015 TEPH Diesel

TEPH Diesel	0.15	1	0.1	mg/L	06/04/05	AF
Surrogates				Units	Control Limits	
o-Terphenyl (sur)	83			%	55 - 200	

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethene	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloropropene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromoethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1-Chlorohexane	ND	1	5	ug/L	06/03/05	DP
2,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
2-Butanone (MEK)	ND	1	100	ug/L	06/03/05	DP
2-Chloroethyl vinyl ether	ND	1	5	ug/L	06/03/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624432

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-Peroxone

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
2-Hexanone	ND	1	20	ug/L	06/03/05 DP
4-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	10	ug/L	06/03/05 DP
Acetone	160	1	100	ug/L	06/03/05 DP
Acetonitrile	ND	1	50	ug/L	06/03/05 DP
Acrolein	ND	1	200	ug/L	06/03/05 DP
Acrylonitrile	ND	1	10	ug/L	06/03/05 DP
Allyl chloride	ND	1	5	ug/L	06/03/05 DP
Benzene	ND	1	1	ug/L	06/03/05 DP
Benzyl chloride	ND	1	5	ug/L	06/03/05 DP
Bromobenzene	ND	1	5	ug/L	06/03/05 DP
Bromochloromethane	ND	1	5	ug/L	06/03/05 DP
Bromodichloromethane	ND	1	5	ug/L	06/03/05 DP
Bromoform	ND	1	5	ug/L	06/03/05 DP
Bromomethane	ND	1	5	ug/L	06/03/05 DP
Carbon Disulfide	ND	1	5	ug/L	06/03/05 DP
Carbon tetrachloride	ND	1	5	ug/L	06/03/05 DP
Chlorobenzene	ND	1	5	ug/L	06/03/05 DP
Chloroethane	ND	1	5	ug/L	06/03/05 DP
Chloroform	ND	1	5	ug/L	06/03/05 DP
Chloromethane	ND	1	5	ug/L	06/03/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
cis-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Dibromochloromethane	ND	1	5	ug/L	06/03/05 DP
Dibromomethane	ND	1	5	ug/L	06/03/05 DP
Dichlorodifluoromethane	ND	1	5	ug/L	06/03/05 DP
Ethyl benzene	ND	1	5	ug/L	06/03/05 DP
Ethyl methacrylate	ND	1	50	ug/L	06/03/05 DP
Hexachlorobutadiene	ND	1	5	ug/L	06/03/05 DP
Iodomethane	ND	1	5	ug/L	06/03/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/L	06/03/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624432

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-Peroxone

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
m and p-Xylene	ND	1	5	ug/L	06/03/05 DP
Methacrylonitrile	ND	1	35	ug/L	06/03/05 DP
Methyl methacrylate	ND	1	5	ug/L	06/03/05 DP
Methyl-tert-butylether (MTBE)	ND	1	1	ug/L	06/03/05 DP
Methylene chloride	ND	1	5	ug/L	06/03/05 DP
n-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
n-Propylbenzene	ND	1	5	ug/L	06/03/05 DP
Naphthalene	ND	1	5	ug/L	06/03/05 DP
o-Xylene	ND	1	5	ug/L	06/03/05 DP
p-Isopropyltoluene	ND	1	5	ug/L	06/03/05 DP
Pentachloroethane	ND	1	5	ug/L	06/03/05 DP
Propionitrile	ND	1	100	ug/L	06/03/05 DP
sec-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Styrene	ND	1	5	ug/L	06/03/05 DP
tert-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Tetrachloroethene	ND	1	5	ug/L	06/03/05 DP
Toluene	ND	1	5	ug/L	06/03/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
trans-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Trichloroethene	ND	1	5	ug/L	06/03/05 DP
Trichlorofluoromethane	ND	1	5	ug/L	06/03/05 DP
Vinyl acetate	ND	1	50	ug/L	06/03/05 DP
Vinyl chloride	ND	1	5	ug/L	06/03/05 DP
Xylenes, total	ND	1	5	ug/L	06/03/05 DP
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	82			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	113			%	70 - 135
Surr3 - Toluene-d8	105			%	70 - 135
Surr4 - p-Bromofluorobenzene	95			%	70 - 135

8015B - Gasoline

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624432

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: COC-Peroxone

Date Sampled: 05/27/2005

Time Sampled: 14:30

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8015B - Gasoline					
Gasoline	ND	1	50	ug/L	06/04/05 WL
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	71			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624434

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: Laboratory Method Blank-S

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	ND	1	5.0	mg/Kg	06/07/05	LT
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8015 TEPH Diesel

TEPH Diesel	ND	1	1.0	mg/Kg	06/03/05	AF
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Surrogates

				Units	Control Limits
o-Terphenyl (sur)	184			%	55 - 200

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloroethene	ND	1	5	ug/Kg	06/04/05	DP
1,1-Dichloropropene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dibromoethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloroethane	ND	1	5	ug/Kg	06/04/05	DP
1,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1,3-Dichloropropane	ND	1	5	ug/Kg	06/04/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/Kg	06/04/05	DP
1-Chlorohexane	ND	1	5	ug/Kg	06/04/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624434

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: Laboratory Method Blank-S

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2,2-Dichloropropane	ND	1	5	ug/Kg	06/04/05 DP
2-Butanone (MEK)	ND	1	100	ug/Kg	06/04/05 DP
2-Chloroethyl vinyl ether	ND	1	5	ug/Kg	06/04/05 DP
2-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
2-Hexanone	ND	1	5	ug/Kg	06/04/05 DP
4-Chlorotoluene	ND	1	5	ug/Kg	06/04/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	5	ug/Kg	06/04/05 DP
Acetone	ND	1	50	ug/Kg	06/04/05 DP
Acetonitrile	ND	1	5	ug/Kg	06/04/05 DP
Acrolein	ND	1	200	ug/Kg	06/04/05 DP
Acrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Allyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Benzene	ND	1	5	ug/Kg	06/04/05 DP
Benzyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Bromobenzene	ND	1	5	ug/Kg	06/04/05 DP
Bromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromodichloromethane	ND	1	5	ug/Kg	06/04/05 DP
Bromoform	ND	1	5	ug/Kg	06/04/05 DP
Bromomethane	ND	1	5	ug/Kg	06/04/05 DP
Carbon Disulfide	ND	1	5	ug/Kg	06/04/05 DP
Carbon tetrachloride	ND	1	5	ug/Kg	06/04/05 DP
Chlorobenzene	ND	1	5	ug/Kg	06/04/05 DP
Chloroethane	ND	1	5	ug/Kg	06/04/05 DP
Chloroform	ND	1	5	ug/Kg	06/04/05 DP
Chloromethane	ND	1	5	ug/Kg	06/04/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
cis-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Dibromochloromethane	ND	1	5	ug/Kg	06/04/05 DP
Dibromomethane	ND	1	5	ug/Kg	06/04/05 DP
Dichlorodifluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Ethyl benzene	ND	1	5	ug/Kg	06/04/05 DP
Ethyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624434

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: Laboratory Method Blank-S

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
3260B Volatile Organic Compounds					
Hexachlorobutadiene	ND	1	5	ug/Kg	06/04/05 DP
Iodomethane	ND	1	5	ug/Kg	06/04/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/Kg	06/04/05 DP
m and p-Xylene	ND	1	5	ug/Kg	06/04/05 DP
Methacrylonitrile	ND	1	5	ug/Kg	06/04/05 DP
Methyl methacrylate	ND	1	5	ug/Kg	06/04/05 DP
Methyl-tert-butylether (MTBE)	ND	1	5	ug/Kg	06/04/05 DP
Methylene chloride	ND	1	5	ug/Kg	06/04/05 DP
n-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
n-Propylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Naphthalene	ND	1	5	ug/Kg	06/04/05 DP
o-Xylene	ND	1	5	ug/Kg	06/04/05 DP
p-Isopropyltoluene	ND	1	5	ug/Kg	06/04/05 DP
Pentachloroethane	ND	1	5	ug/Kg	06/04/05 DP
Propionitrile	ND	1	5	ug/Kg	06/04/05 DP
sec-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Styrene	ND	1	5	ug/Kg	06/04/05 DP
tert-Butylbenzene	ND	1	5	ug/Kg	06/04/05 DP
Tetrachloroethene	ND	1	5	ug/Kg	06/04/05 DP
Toluene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/Kg	06/04/05 DP
trans-1,4-Dichloro-2-butene	ND	1	5	ug/Kg	06/04/05 DP
Trichloroethene	ND	1	5	ug/Kg	06/04/05 DP
Trichlorofluoromethane	ND	1	5	ug/Kg	06/04/05 DP
Vinyl acetate	ND	1	50	ug/Kg	06/04/05 DP
Vinyl chloride	ND	1	5	ug/Kg	06/04/05 DP
Xylenes, total	ND	1	5	ug/Kg	06/04/05 DP
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	97			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	110			%	70 - 135
Surr3 - Toluene-d8	105			%	70 - 135

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624434

Client: SOTA Environmental Technology, Inc.

Matrix: SOLID

Client Sample ID: Laboratory Method Blank-S

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
3260B Volatile Organic Compounds					
Surr4 - p-Bromofluorobenzene	106			%	70 - 135
3015B - Gasoline					
Gasoline	ND	1	3	mg/Kg	06/06/05 LT
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	89			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 624435

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank-W

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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8015 TEPH Diesel

TEPH Diesel	ND	1	0.1	mg/L	06/03/05	AF
Surrogates				Units	Control Limits	
o-Terphenyl (sur)	124			%	55 - 200	

8260B Volatile Organic Compounds

1,1,1,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,1-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2,2-Tetrachloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloroethene	ND	1	5	ug/L	06/03/05	DP
1,1-Dichloropropene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,3-Trichloropropane	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2,4-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromo-3-chloropropane	ND	1	5	ug/L	06/03/05	DP
1,2-Dibromoethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloroethane	ND	1	5	ug/L	06/03/05	DP
1,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,3,5-Trimethylbenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1,3-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
1,4-Dichlorobenzene	ND	1	5	ug/L	06/03/05	DP
1-Chlorohexane	ND	1	5	ug/L	06/03/05	DP
2,2-Dichloropropane	ND	1	5	ug/L	06/03/05	DP
2-Butanone (MEK)	ND	1	100	ug/L	06/03/05	DP
2-Chloroethyl vinyl ether	ND	1	5	ug/L	06/03/05	DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624435

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank-W

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
2-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
2-Hexanone	ND	1	20	ug/L	06/03/05 DP
4-Chlorotoluene	ND	1	5	ug/L	06/03/05 DP
4-Methyl -2- Pentanone (MIBK)	ND	1	10	ug/L	06/03/05 DP
Acetone	ND	1	100	ug/L	06/03/05 DP
Acetonitrile	ND	1	50	ug/L	06/03/05 DP
Acrolein	ND	1	200	ug/L	06/03/05 DP
Acrylonitrile	ND	1	10	ug/L	06/03/05 DP
Allyl chloride	ND	1	5	ug/L	06/03/05 DP
Benzene	ND	1	1	ug/L	06/03/05 DP
Benzyl chloride	ND	1	5	ug/L	06/03/05 DP
Bromobenzene	ND	1	5	ug/L	06/03/05 DP
Bromochloromethane	ND	1	5	ug/L	06/03/05 DP
Bromodichloromethane	ND	1	5	ug/L	06/03/05 DP
Bromoform	ND	1	5	ug/L	06/03/05 DP
Bromomethane	ND	1	5	ug/L	06/03/05 DP
Carbon Disulfide	ND	1	5	ug/L	06/03/05 DP
Carbon tetrachloride	ND	1	5	ug/L	06/03/05 DP
Chlorobenzene	ND	1	5	ug/L	06/03/05 DP
Chloroethane	ND	1	5	ug/L	06/03/05 DP
Chloroform	ND	1	5	ug/L	06/03/05 DP
Chloromethane	ND	1	5	ug/L	06/03/05 DP
cis-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
cis-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
cis-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Dibromochloromethane	ND	1	5	ug/L	06/03/05 DP
Dibromomethane	ND	1	5	ug/L	06/03/05 DP
Dichlorodifluoromethane	ND	1	5	ug/L	06/03/05 DP
Ethyl benzene	ND	1	5	ug/L	06/03/05 DP
Ethyl methacrylate	ND	1	50	ug/L	06/03/05 DP
Hexachlorobutadiene	ND	1	5	ug/L	06/03/05 DP
Iodomethane	ND	1	5	ug/L	06/03/05 DP
Isopropylbenzene (Cumene)	ND	1	5	ug/L	06/03/05 DP

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624435

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank-W

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
8260B Volatile Organic Compounds					
m and p-Xylene	ND	1	5	ug/L	06/03/05 DP
Methacrylonitrile	ND	1	35	ug/L	06/03/05 DP
Methyl methacrylate	ND	1	5	ug/L	06/03/05 DP
Methyl-tert-butylether (MTBE)	ND	1	1	ug/L	06/03/05 DP
Methylene chloride	ND	1	5	ug/L	06/03/05 DP
n-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
n-Propylbenzene	ND	1	5	ug/L	06/03/05 DP
Naphthalene	ND	1	5	ug/L	06/03/05 DP
o-Xylene	ND	1	5	ug/L	06/03/05 DP
p-Isopropyltoluene	ND	1	5	ug/L	06/03/05 DP
Pentachloroethane	ND	1	5	ug/L	06/03/05 DP
Propionitrile	ND	1	100	ug/L	06/03/05 DP
sec-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Styrene	ND	1	5	ug/L	06/03/05 DP
tert-Butylbenzene	ND	1	5	ug/L	06/03/05 DP
Tetrachloroethene	ND	1	5	ug/L	06/03/05 DP
Toluene	ND	1	5	ug/L	06/03/05 DP
trans-1,2-Dichloroethene	ND	1	5	ug/L	06/03/05 DP
trans-1,3-Dichloropropene	ND	1	5	ug/L	06/03/05 DP
trans-1,4-Dichloro-2-butene	ND	1	20	ug/L	06/03/05 DP
Trichloroethene	ND	1	5	ug/L	06/03/05 DP
Trichlorofluoromethane	ND	1	5	ug/L	06/03/05 DP
Vinyl acetate	ND	1	50	ug/L	06/03/05 DP
Vinyl chloride	ND	1	5	ug/L	06/03/05 DP
Xylenes, total	ND	1	5	ug/L	06/03/05 DP
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	78			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	108			%	70 - 135
Surr3 - Toluene-d8	102			%	70 - 135
Surr4 - p-Bromofluorobenzene	95			%	70 - 135

8015B - Gasoline

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 624435

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank-W

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
3015B - Gasoline					
Gasoline	ND	1	50	ug/L	06/04/05 WL
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	87			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



ASSOCIATED LABORATORIES
LCS REPORT FORM

QC Sample: 151330

Matrix: WATER

Prep. Date: June 7, 2005

Analysis Date: June 7, 2005

ID#'s in Batch: LR 151330

Reporting Units = mg/L

PREPARATION BLANK / LAB CONTROL SAMPLE RESULTS

Test	Method	PREP BLK	LCS				
		Value	Result	True	%Rec	L.Limit	H.Limit
COD	410.4	ND	1,004	1,000	100	80%	120%

Value = Preparation Blank Value

LCS Result = Lab Control Sample Result

True = True Value of LCS

L.Limit / H.Limit = LCS Control Limits

**ASSOCIATED LABORATORIES
QA REPORT FORM**

QC Sample: 151459-085

Matrix: SOLID

Extraction Method : 3545

Prep. Date: June 3, 2005

Analysis Date: June 3, 2005

ID#'s in Batch: LR 151511, 151459, 151330, 151521

Reporting Units = mg/Kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RESULT

Test	Method	Sample Result	Spike Added	Matrix Spike	Matrix Spike Dup	%Rec MS	%Rec MSD	RPD	QC Limits	
									RPD	%REC
DIESEL	8015D	ND	25	18.0	20.3	72	81	12	30	70-130

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD	QC Limits	
									RPD	%REC
DIESEL	8015D	ND	25	25.0	19.0	100	76	27	30	70-130

SURROGATE RECOVERY

Sample No.	O-Terphenyl
QC Limit	55-200
MS	180
MSD	189
Method Blank	184
LCS	149
LCSD	178

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: LCS/LCSD

Matrix: WATER

Extraction Method : 3510C

Prép. Date: June 3, 2005

Analysis Date June 3, 2005

ID#'s in Batch: LR 151439, 151436, 151330, 151397

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
DIESEL	8015D	ND	1	0.76	0.83	76	83	9

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

<i>%REC LIMITS = 70 - 130</i>

<i>RPD LIMITS = 30</i>

SURROGATE RECOVERY

Sample No.	O-Terphenyl
QC Limit	55-200
Method Blank	124
LCS	139
LCSD	175

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: LCS/LCSD
Matrix: SOLID
Prep. Date: June 6, 2005
Analysis Date: June 06 - 07, 2005
ID#'s in Batch: LR 151460, 151330

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/Kg

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
TPH	8015M-G	ND	5	4.5	4.5	90	90	0

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

%REC LIMITS = 70 - 130

RPD LIMITS = 30

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	89
LCS	111
LCSD	115

AAA-TFT = a,a,a-Trifluorotoluene

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: LCS/LCSD

Matrix: WATER

Prep. Date: June 3, 2005

Analysis Date: June 3, 2005

ID#'s in Batch: LR 151377, 151397, 151317, 151460, 151436, 151330

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
TPH	8015M-G	ND	500	506	505	101	101	0

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

<i>%REC LIMITS = 70 - 130</i>

<i>RPD LIMITS = 30</i>

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	82
LCS	190
LCSD	190

AAA-TFT = a,a,a-Trifluorotoluene

ASSOCIATED LABORATORIES
LCS REPORT FORM - METHOD 8260 / 624 / 524.2

QC Sample: LCS/LCSD - Water Samples
Analysis Date: June 4, 2005 8:09 PM
Applies to: LR 151498, 151330, 151370
Reporting Units = ug/Kg

Lab Controlled Spike / Lab Controlled Spike Duplicate

Test	Sample Result	Spike Added	LCS Spike	LCS Spk. Dup	%Rec LCS	%Rec LCS D	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene	ND	50.0	51.38	49.94	103	100	3	22	59-172
MTBE	ND	50.0	43.48	43.15	87	86	1	24	62-137
Benzene	ND	50.0	50.62	49.97	101	100	1	24	62-137
Trichloroethene	ND	50.0	59.91	56.02	120	112	7	21	66-142
Toluene	ND	50.0	55.03	56.04	110	112	2	21	59-139
Chlorobenzene	ND	50.0	52.50	52.08	105	104	1	21	60-133

QC Sample: LCS # 2 12:55 PM
Analysis Date: June 4, 2005

LCS RECOVERY / METHOD BLANK

Test	Sample Result	Spike Added	LCS Spike	%Rec LCS	QC Limits %REC
1,1-Dichloroethene	ND	50.0	52.14	104	59-172
MTBE	ND	50.0	45.62	91	62-137
Benzene	ND	50.0	50.88	102	62-137
Trichloroethene	ND	50.0	55.40	111	66-142
Toluene	ND	50.0	54.11	108	59-139
Chlorobenzene	ND	50.0	52.54	105	60-133

Method Blank = All ND

SURROGATE (QC Limits : 70-135)

Compound	MB 3	LCS 2	LCS	LCSD
DBFM	97	97	94	93
1,2-DCA	110	102	97	98
Tol-d8	105	102	107	107
p-BFB	106	104	107	106

ASSOCIATED LABORATORIES
QA REPORT FORM - METHOD 8260 / 624 / 524.2

QC Sample: MS / MSD - Water Samples 151320-352
 Analysis Date: June 4, 2005 6:39 AM
 Applies to: LR 151439, 151471, 151330, 151318, 151317, 151320, 151321
 Reporting Units = ug/L

Matrix Spike / Matrix Spike Duplicate

Test	Sample Result	Spike Added	Matrix Spike	Matrix Spk. Dup	%Rec MS	%Rec MSD	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene *	ND	25.0	21.48	29.34	86	117	31	22	59-172
MTBE	ND	25.0	20.54	20.31	82	81	1	24	62-137
Benzene	ND	25.0	24.24	24.13	97	97	0	24	62-137
Trichloroethene	ND	25.0	22.41	22.66	90	91	1	21	66-142
Toluene	ND	25.0	24.36	24.97	97	100	2	21	59-139
Chlorobenzene	ND	25.0	24.06	24.32	96	97	1	21	60-133

QC Sample: LCS # 1 10:56 PM
 Analysis Date: June 3, 2005

LCS RECOVERY / METHOD BLANK

Test	Sample Result	Spike Added	LCS Spike	%Rec LCS	QC Limits %REC
1,1-Dichloroethene	ND	50.0	59.78	120	59-172
MTBE	ND	50.0	49.39	99	62-137
Benzene	ND	50.0	49.79	100	62-137
Trichloroethene	ND	50.0	47.13	94	66-142
Toluene	ND	50.0	48.92	98	59-139
Chlorobenzene	ND	50.0	47.66	95	60-133

QC Sample: LCS # 2 10:32 AM
 Analysis Date: June 4, 2005

LCS RECOVERY / METHOD BLANK

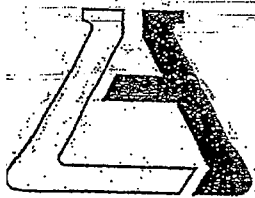
Test	Sample Result	Spike Added	LCS Spike	%Rec LCS	QC Limits %REC
1,1-Dichloroethene	ND	50.0	52.66	105	59-172
MTBE	ND	50.0	51.95	104	62-137
Benzene	ND	50.0	51.56	103	62-137
Trichloroethene	ND	50.0	48.05	96	66-142
Toluene	ND	50.0	49.47	99	59-139
Chlorobenzene	ND	50.0	48.72	97	60-133

Method Blank = All ND

* MS/MSD is outside QC limits. However LCS recoveries conformed.

SURROGATE (QC Limits : 70-135)

Compound	MB 1	MB 2	MS	MSD	LCS 1	LCS 2
DBFM	78	81	86	84	89	90
1,2-DCA	108	111	78	79	89	89
Tol-d8	102	102	102	103	100	98
p-BFB	95	94	86	88	86	84



ASSOCIATED LABORATORIES

06 North Batavia - Orange, California 92868-1225 - 714/771-6900 FAX 714/538-1209

Cooler Receipt Form

Client: Sota Env Project: ✓

Date Cooler Received: 6/1 Date Cooler Opened: 6/1/05

Was cooler scanned for presence of radioactivity?
If yes was radioactivity results above 25 cpm?

Yes/No
Yes/No

Was a shipper's packing slip attached to the cooler?

Yes/No

If the cooler had custody seal(s), were they signed and intact?

Yes/No/Na

Was the cooler packed with: Ice ✓ Ice Packs ✓ Bubble wrap ✓
Styrofoam ✓ Paper ✓ None ✓ Other ✓

Cooler Temperature: 3.0 °C *

*cooler needs to be received @ 4°C with an acceptable range of 2° - 6 °C

If samples were hand delivered do they meet the temp. criteria, which should be @ 4°C with an acceptable range of 2° - 6 °C?

Yes/No

If no explain: _____

Were all samples sealed in plastic bags?

Yes/No

Did all samples arrive intact? If no, indicate below.

Yes/No

Were all samples labeled correctly? (ID's Dates, Times) If no, indicate below.

Yes/No

Can the tests required be ran with the provided containers, If no indicate below.

Yes/No

Was sufficient sample volume sent for all containers?

Yes/No

Were any VOA vials received with head space?

Yes/No/Na

Was the correct preservatives used?

Yes/No/Na

If no, see the pH log for a list of samples containers regarding pH

Any other important information: _____

Receiving Department: m Date: 6/1/05

CHAIN OF CUSTODY
 PRIMA Environmental
 10265 Old Placerville Road, Suite 15, Sacramento, CA 95827-3042
 (916) 363-8798 * (916) 363-8829 FAX

Project Manager Yu Zeng
 Project Name SO TA-Dzone Evaluation
 Job Number _____
 Date 5-31-05
 Turnaround Time Std

Laboratory Danielle Roberts * Please
Associated Labs return
806 N Batavia Avenue cooler
Orange CA 92868 Thanks
 Phone 714-771-1900

SAMPLE ID	Date	Time	Matrix	# containers		Analysis				Comments
SO TA-Original Soil	5-27-05	215	S	2	2	TPH(d)	TPH(g)	TCLP	COD	
- Control-S		230	S	2	2					
- D3-S			S	2	2					
- Perexone-S			S	2	2					
- COD-L			S	2	2	X				
- COD-L			S	2	2		X			
- COD-D3			S	2	2	X				
- COD-D3			S	2	2		X			
- COD-Perexone			S	2	2	X				
- COD			S	2	2		X			

Special Instructions

* Direct bill to: Yu Zeng
 SO TA Environmental Technology
 5151 Shoreham Place Suite 1
 San Diego CA 92122
 858-404-7390 Fax: 858-404-

Company <u>PRIMA ENVIRONMENTAL</u>		Company <u>PRIMA ENVIRONMENTAL</u>	
Name <u>Bob Brewer</u>	Name _____	Name _____	Name _____
Date <u>5-31-05</u>	Time <u>10:00</u>	Date _____	Time _____
Relinquished by:		Received by:	
Date _____ Time _____		Date _____ Time _____	

7395

CHAIN OF CUSTODY

PRIMA Environmental

10265 Old Placerville Road, Suite 15, Sacramento, CA 95827-3042

(916) 363-8798 * (916) 363-8829 FAX

Laboratory Danielle Roberts

Associated Labs

806 N. Babavira

Orange, CA 92868

Phone 714-772-6900

Project Manager Yu Zeng

Project Name SOFA Env. Tech. *

Job Number

Date 6-1-05

Turnaround Time std

SAMPLE ID

Date

Time

Matrix

containers

Analysis

Comments

TPH (2)

addition sample as requested

SOFA-C-AQ

5-21-05

230

AQ

1

SOFA-D3-AQ

1

1

1

1

SOFA-Peroxone-AQ

1

1

1

1

Special Instructions

Direct bill to SOFA

Relinquished by:

Company PRIMA

Name Beth Breuer

Date 6-1-05 Time 1200

Relinquished by:

Company

Name

Date Time

Received by:

Company

Name

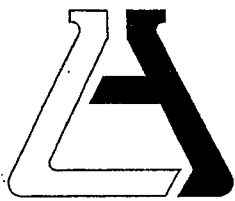
Date 6/2/05 Time 10:20

Received by:

Company

Name

Date Time



ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92868 - 714/771-6900

FAX 714/538-1209

CLIENT SOTA Environmental Technology, Inc. (11300)

ATTN: Yu Zeng

16835 W. Bernardo

Suite 212

San Diego, CA 92127-1613

LAB REQUEST 150899

REPORTED 06/01/2005

RECEIVED 05/23/2005

PROJECT #93HW014
U-Haul Santa Rosa

SUBMITTER Client

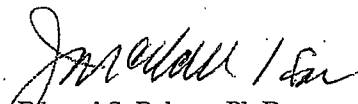
COMMENTS

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods as indicated on the report. This cover letter is an integral part of the final report.

<u>Order No.</u>	<u>Client Sample Identification</u>
622387	MW-2
622388	J-01
622389	MW-103
622390	Laboratory Method Blank

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

ASSOCIATED LABORATORIES by,


Edward S. Behare, Ph.D.
Vice President

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

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TESTING & CONSULTING
Chemical
Microbiological
Environmental

Order #: 622387

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-2

Date Sampled: 05/20/2005

Time Sampled: 12:00

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

405.1 Biochemical Oxygen Demand (BOD)

BOD	51	1	3.0	mg/L	05/23/05 LT
-----	----	---	-----	------	-------------

410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	190	1	4.0	mg/L	05/25/05 LT
------------------------	-----	---	-----	------	-------------

8015 TEPH Diesel

TEPH Diesel	1.9	10	1.0	mg/L	05/25/05 AF
-------------	-----	----	-----	------	-------------

Surrogates

				Units	Control Limits
o-Terphenyl (sur)	242*			%	55 - 200

8260B BTEX/MTBE Only

Benzene	135	10	10.0	ug/L	05/29/05 LB
Ethyl benzene	330	10	50.0	ug/L	05/29/05 LB
Methyl-tert-butylether (MTBE)	20	10	10.0	ug/L	05/29/05 LB
Toluene	318	10	50.0	ug/L	05/29/05 LB
Xylenes, total	1880	10	50.0	ug/L	05/29/05 LB
Ethyl-tertbutylether (ETBE)	ND	10	10.0	ug/L	05/29/05 LB
Isopropyl ether (DIPE)	ND	10	10.0	ug/L	05/29/05 LB
Tert-amylmethylether (TAME)	ND	10	10.0	ug/L	05/29/05 LB
Tertiary butyl alcohol (TBA)	ND	10	100.0	ug/L	05/29/05 LB

Surrogates

				Units	Control Limits
Surr1 - Dibromofluoromethane	95			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	98			%	70 - 130
Surr3 - Toluene-d8	106			%	70 - 130
Surr4 - p-Bromofluorobenzene	106			%	70 - 130

9215 Standard Plate Count

Standard Plate Count	13500	1	1	CFU/ml	05/23/05 SM
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 622387

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-2

Date Sampled: 05/20/2005

Time Sampled: 12:00

Sampled By:

Analyte

Result

DF

DLR

Units

Date/Analyst

9215 Standard Plate Count

8015B - Gasoline

Gasoline

11700

20

1000.0

ug/L

05/25/05

WL

Surrogates

Units

Control Limits

a,a,a-Trifluorotoluene

170

%

55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 622388

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: J-01

Date Sampled: 05/20/2005

Time Sampled: 12:00

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

405.1 Biochemical Oxygen Demand (BOD)

BOD	8.0	1	3.0	mg/L	05/23/05	LT
-----	-----	---	-----	------	----------	----

410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	22	1	4.0	mg/L	05/25/05	LT
------------------------	----	---	-----	------	----------	----

8015 TEPH Diesel

TEPH Diesel	0.34	1	0.1	mg/L	05/25/05	AF
-------------	------	---	-----	------	----------	----

Surrogates

				Units	Control Limits
o-Terphenyl (sur)	163			%	55 - 200

8260B BTEX/MTBE Only

Benzene	121	1	1	ug/L	05/29/05	LB
Ethyl benzene	101	1	5	ug/L	05/29/05	LB
Methyl-tert-butylether (MTBE)	81	1	1	ug/L	05/29/05	LB
Toluene	21	1	5	ug/L	05/29/05	LB
Xylenes, total	33	1	5	ug/L	05/29/05	LB
Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	05/29/05	LB
Isopropyl ether (DIPE)	ND	1	1	ug/L	05/29/05	LB
Tert-amylmethylether (TAME)	ND	1	1	ug/L	05/29/05	LB
Tertiary butyl alcohol (TBA)	23	1	10	ug/L	05/29/05	LB

Surrogates

				Units	Control Limits
Surr1 - Dibromofluoromethane	95			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	82			%	70 - 130
Surr3 - Toluene-d8	105			%	70 - 130
Surr4 - p-Bromofluorobenzene	111			%	70 - 130

9215 Standard Plate Count

Standard Plate Count	2900	1	1	CFU/ml	05/23/05	SM
----------------------	------	---	---	--------	----------	----

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 622388

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: J-01

Date Sampled: 05/20/2005

Time Sampled: 12:00

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

9215 Standard Plate Count

8015B - Gasoline

Gasoline	1940	5	250.0	ug/L	05/25/05	WL
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	132			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 622389

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-103

Date Sampled: 05/20/2005

Time Sampled: 11:40

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
405.1 Biochemical Oxygen Demand (BOD)					
BOD	3.0	1	3.0	mg/L	05/23/05 LT
410.4 Chemical Oxygen Demand (COD)					
Chemical Oxygen Demand	7.0	1	4.0	mg/L	05/25/05 LT
8015 TEPH Diesel					
TEPH Diesel	0.15	1	0.1	mg/L	05/25/05 AF
Surrogates				Units	Control Limits
o-Terphenyl (sur)	148			%	55 - 200
8260B BTEX/MTBE Only					
Benzene	52	1	1	ug/L	05/29/05 LB
Ethyl benzene	86	1	5	ug/L	05/29/05 LB
Methyl-tert-butylether (MTBE)	1.6	1	1	ug/L	05/29/05 LB
Toluene	22	1	5	ug/L	05/29/05 LB
Xylenes, total	161	1	5	ug/L	05/29/05 LB
Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	05/29/05 LB
Isopropyl ether (DIPE)	ND	1	1	ug/L	05/29/05 LB
Tert-amylmethylether (TAME)	ND	1	1	ug/L	05/29/05 LB
Tertiary butyl alcohol (TBA)	ND	1	10	ug/L	05/29/05 LB
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	96			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	94			%	70 - 130
Surr3 - Toluene-d8	105			%	70 - 130
Surr4 - p-Bromofluorobenzene	106			%	70 - 130
9215 Standard Plate Count					
Standard Plate Count	2000	1	1	CFU/ml	05/23/05 SM

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 622389

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-103

Date Sampled: 05/20/2005

Time Sampled: 11:40

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

9215 Standard Plate Count

8015B - Gasoline

Gasoline	1760	1	50	ug/L	05/25/05	WL
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	255*			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 622390

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
405.1 Biochemical Oxygen Demand (BOD)					
BOD	ND	1	3.0	mg/L	05/23/05 LT
410.4 Chemical Oxygen Demand (COD)					
Chemical Oxygen Demand	ND	1	4.0	mg/L	05/25/05 LT
8015 TEPH Diesel					
TEPH Diesel	ND	1	0.1	mg/L	05/24/05 AF
Surrogates				Units	Control Limits
o-Terphenyl (sur)	156			%	55 - 200
8260B BTEX/MTBE Only					
Benzene	ND	1	1	ug/L	05/29/05 LB
Ethyl benzene	ND	1	5	ug/L	05/29/05 LB
Methyl-tert-butylether (MTBE)	ND	1	1	ug/L	05/29/05 LB
Toluene	ND	1	5	ug/L	05/29/05 LB
Xylenes, total	ND	1	5	ug/L	05/29/05 LB
Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	05/29/05 LB
Isopropyl ether (DIPE)	ND	1	1	ug/L	05/29/05 LB
Tert-amylmethylether (TAME)	ND	1	1	ug/L	05/29/05 LB
Tertiary butyl alcohol (TBA)	ND	1	10	ug/L	05/29/05 LB
Surrogates				Units	Control Limits
Surr1 - Dibromofluoromethane	96			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	105			%	70 - 130
Surr3 - Toluene-d8	101			%	70 - 130
Surr4 - p-Bromofluorobenzene	102			%	70 - 130
9215 Standard Plate Count					
Standard Plate Count	< 1	1	1	CFU/ml	05/23/05 SM

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 622390

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank

Date Sampled:

Time Sampled:

Sampled By:

Analyte

Result

DF

DLR

Units

Date/Analyst

9215 Standard Plate Count

8015B - Gasoline

Gasoline

ND

1

50

ug/L

05/25/05

WL

Surrogates

Units

Control Limits

a,a,a-Trifluorotoluene

85

%

55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



ASSOCIATED LABORATORIES
QA REPORT FORM - METHOD 8260 / 624 / 524.2

QC Sample: MS / MSD - Water Samples 150899-389
Analysis Date: May 24, 2005 10:18 PM
Applies to: LR 150685, 150899, 150981, 150951, 151003

Reporting Units = ug/L

Matrix Spike / Matrix Spike Duplicate

Test	Sample Result	Spike Added	Matrix Spike	Matrix Spk Dup.	%Rec MS	%Rec MSD	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene	ND	50.0	56.51	56.22	113	112	1	22	59-172
MTBE	1.88	50.0	51.48	49.49	99	95	4	24	62-137
Benzene	62.80	50.0	103.42	102.92	81	80	0	24	62-137
Trichloroethene	ND	50.0	51.27	50.25	103	101	2	21	66-142
Toluene	30.30	50.0	79.10	76.36	98	92	4	21	59-139
Chlorobenzene	ND	50.0	49.90	49.87	100	100	0	21	60-133

QC Sample: LCS/LCSD 5:23 PM
Analysis Date: May 24, 2005

Lab Controlled Spike / Lab Controlled Spike Duplicate

Test	Sample Result	Spike Added	LCS Spike	LCS Spk Dup.	%Rec LCS	%Rec LCS D	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene	ND	50.0	54.17	56.07	108	112	3	22	59-172
MTBE	ND	50.0	47.69	50.47	95	101	6	24	62-137
Benzene	ND	50.0	50.48	48.52	101	97	4	24	62-137
Trichloroethene	ND	50.0	47.67	54.99	95	110	14	21	66-142
Toluene	ND	50.0	49.52	50.93	99	102	3	21	59-139
Chlorobenzene	ND	50.0	48.95	49.80	98	100	2	21	60-133

Method Blank = All ND

SURROGATE (QC Limits : 70-135)

Compound	MB 1	MB 2	MS	MSD	LCS	LCSD
DBFM	85	87	105	104	95	98
1,2-DCA	101	103	90	90	88	91
Tol-d8	103	101	101	102	103	102
p-BFB	96	95	91	92	90	90

ASSOCIATED LABORATORIES
QA REPORT FORM - METHOD 8260 / 624 / 524.2

QC Sample: MS / MSD - Water Samples 151221-910
Analysis Date: May 29, 2005 6:40 AM
Applies to: LR 151211, 150811, 150899, 150951, 150957, 151068

Reporting Units = ug/L

Matrix Spike / Matrix Spike Duplicate

Test	Sample Result	Spike Added	Matrix Spike	Matrix Spk Dup.	%Rec MS	%Rec MSD	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene	ND	50.0	47.52	49.21	95	98	3	22	59-172
MTBE	ND	50.0	45.68	47.44	91	95	4	24	62-137
Benzene	ND	50.0	48.21	49.79	96	100	3	24	62-137
Trichloroethene	ND	50.0	44.04	46.58	88	93	6	21	66-142
Toluene	ND	50.0	49.65	51.33	99	103	3	21	59-139
Chlorobenzene	ND	50.0	50.80	52.21	102	104	3	21	60-133

QC Sample: LCS/LCSD 2:05 AM
Analysis Date: May 29, 2005

Lab Controlled Spike / Lab Controlled Spike Duplicate

Test	Sample Result	Spike Added	LCS Spike	LCS Spk Dup.	%Rec LCS	%Rec LCS D	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene	ND	50.0	55.45	53.77	111	108	3	22	59-172
MTBE	ND	50.0	48.10	52.88	96	106	9	24	62-137
Benzene	ND	50.0	50.70	55.06	101	110	8	24	62-137
Trichloroethene	ND	50.0	54.53	52.80	109	106	3	21	66-142
Toluene	ND	50.0	54.15	53.67	108	107	1	21	59-139
Chlorobenzene	ND	50.0	54.13	56.20	108	112	4	21	60-133

Method Blank = All ND

SURROGATE (QC Limits : 70-135)

Compound	MB 5	MB 6	MS	MSD	LCS	LCSD
DBFM	96	96	96	95	97	96
1,2-DCA	105	103	99	95	100	98
Tol-d8	101	105	104	104	105	100
p-BFB	102	104	102	102	105	103

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: Std. Sol

Matrix: WATER

Prep. Date: May 23, 2005

Analysis Date: May 28, 2005

ID#s in Batch: LR 150899, 150909, 150924, 150926

Reporting Units = mg/L

PREPARATION BLANK / LAB CONTROL SAMPLE RESULTS

Test	Method	PREP. BLANK	LCS				
		Value	Result	True	%Rec	L.Limit	H.Limit
BOD	405.1	ND	218.00	200	109	80%	120%

Value = Preparation Blank Value; ND = Not-Detected

LCS Result = Lab Control Sample Result

True = True Value of LCS

L.Limit / H.Limit = LCS Control Limits

**ASSOCIATED LABORATORIES
QA REPORT FORM**

QC Sample: 150899

Matrix: WATER

Prep. Date: May 25, 2005

Analysis Date: May 25, 2005

ID#'s in Batch: LR 150719, 150720, 150854, 150855, 150899, 150773, 150783, 150784, 150794, 150806,
LR 150807, 150853

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Sample Result	Spike Added	Matrix Spike	Matrix Spike Dup	%Rec MS	%Rec MSD	RPD
COD	410.4	7	100	107.5	107.5	101	101	0

ND = Not-Detected

RPD = Relative Percent Difference of Matrix Spike and Matrix Spike Duplicate

%REC-MS & MSD = Percent Recovery of Matrix Spike & Matrix Spike Duplicate

<i>%REC LIMITS = 75 - 125</i>

<i>RPD LIMITS = 20</i>

PREPARATION BLANK / LAB CONTROL SAMPLE RESULTS

PREP BLK	LCS				
Value	Result	True	%Rec	L.Limit	H.Limit
ND	91	100	91	80%	120%

Value = Preparation Blank Value

LCS Result = Lab Control Sample Result

True = True Value of LCS

L.Limit / H.Limit = LCS Control Limits

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: LCS/LCSD
Matrix: WATER
Prep. Date: May 24, 2005
Analysis Date: May 24 - 25, 2005
ID#'s in Batch: LR 150858, 150899, 150884

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
TPH	8015M-G	ND	500	514	509	103	102	1

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

<i>%REC LIMITS = 70 - 130</i>

<i>RPD LIMITS = 30</i>

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	82
LCS	180
LCSD	178

AAA-TFT = a,a,a-Trifluorotoluene

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: LCS/LCSD
Matrix: WATER
Prep. Date: May 25, 2005
Analysis Date: May 25 - 26, 2005
ID#'s in Batch: LR 150884, 150928, 150899

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
TPH	8015M-G	ND	500	514	506	103	101	2

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

<i>%REC LIMITS = 70 - 130</i>

<i>RPD LIMITS = 30</i>

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	85
LCS	195
LCSD	190

AAA-TFT = a,a,a-Trifluorotoluene

ASSOCIATED LABORATORIES
LCS REPORT FORM

QC Sample: LCS/LCSD

Matrix: WATER

Prep. Date: May 24, 2005

Analysis Date: May 24 - 25, 2005

LAB ID#'s in Batch: LR 150858, 150899, 150884

REPORTING UNITS = ug/L

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Test	Method	Sample Result	Spike Added	Matrix LCS	Matrix LCSD	%Rec LCS	%Rec LCSD	RPD
Benzene	8021	ND	20	19.4	18.3	97	92	6
Toluene	8021	ND	20	19.3	18.3	97	92	5
Ethylbenzene	8021	ND	20	19.0	18.1	95	91	5
Xylenes	8021	ND	60	58.7	56.9	98	95	3

ND = Not Detected

RPD = Relative Percent Difference of Matrix LCS and Matrix LCSD

%REC-LCS & LCSD = Percent Recovery of LCS & LCSD

%REC LIMITS = 70 - 130

RPD LIMITS = 30

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	82
LCS	96
LCSD	97

AAA-TFT = a,a,a-Trifluorotoluene

ASSOCIATED LABORATORIES
LCS REPORT FORM

QC Sample: LCS/LCSD
 Matrix: WATER
 Prep. Date: May 25, 2005
 Analysis Date: May 25 - 26, 2005
 LAB ID#'s in Batch: LR 150884, 150928, 150899

REPORTING UNITS = ug/L

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Test	Method	Sample Result	Spike Added	Matrix LCS	Matrix LCSD	%Rec LCS	%Rec LCSD	RPD
Benzene	8021	ND	20	19.3	18.2	97	91	6
Toluene	8021	ND	20	19.1	18.1	96	91	5
Ethylbenzene	8021	ND	20	18.7	17.8	94	89	5
Xylenes	8021	ND	60	57.8	55.4	96	92	4

ND = Not Detected

RPD = Relative Percent Difference of Matrix LCS and Matrix LCSD

%REC-LCS & LCSD = Percent Recovery of LCS & LCSD

%REC LIMITS = 70 - 130
RPD LIMITS = 30

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	82
LCS	99
LCSD	99.5

AAA-TFT = a,a,a-Trifluorotoluene

ASSOCIATED LABORATORIES
LCS REPORT FORM

QC Sample: LCS/LCSD
Matrix: WATER
Extraction Method : 3510C
Prep. Date: May 24, 2005
Analysis Date May 24, 2005
ID#'s in Batch: LR 150873, 150899

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
DIESEL	8015D	ND	1	0.79	0.75	79	75	5

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

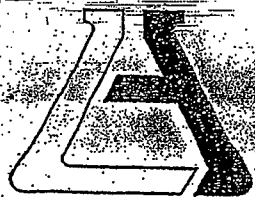
RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

<i>%REC LIMITS = 70 - 130</i>

<i>RPD LIMITS = 30</i>

SURROGATE RECOVERY

Sample No.	O-Terphenyl
QC Limit	55-200
Method Blank	156
LCS	136
LCSD	129



ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92868-1225 - 714/771-6900 FAX 714/538-1209

Cooler Receipt Form

Client: Sotv Project: /

Date Cooler Received: 5/23 Date Cooler Opened: 5/23/05

Was cooler scanned for presence of radioactivity ?

Yes/No

If yes was radioactivity results above 25 cpm ?

Yes/No

Was a shipper's packing slip attached to the cooler ?

Yes/No

If the cooler had custody seal(s), were they signed and intact ?

Yes/No/Na

Was the cooler packed with: Ice ☒ Ice Packs ☐ Bubble wrap ☐
Styrofoam ☐ Paper ☐ None ☐ Other ☐

Cooler Temperature: 2.2°C *

*cooler needs to be received @ 4°C with an acceptable range of 2° - 6 °C

If samples were hand delivered do they meet the temp. criteria, which should be @ 4°C with an acceptable range of 2° - 6 °C ?

Yes/No

If no explain: _____

Were all samples sealed in plastic bags ?

Yes/No

Did all samples arrive intact ? If no, indicate below.

Yes/No

Were all samples labeled correctly ? (ID's Dates, Times) If no, indicate below.

Yes/No

Can the tests required be ran with the provided containers, If no indicate below.

Yes/No

Was sufficient sample volume sent for all containers ?

Yes/No

Were any VOA vials received with head space ?

Yes/No/Na

Was the correct preservatives used ?

Yes/No/Na

If no, see the pH log for a list of samples containers regarding pH.

Any other important information: _____

Receiving Department: m Date: 5/23

Quinn = 960
#20

Waste water



SOTA Environmental Technology Inc.
16835 W. Bernardo Drive, Suite 212
San Diego, CA 92127-1613
Tel: (858) 485-8100 Fax: (858) 485-0812

Chain of Custody 150899

COC# _____ Please Print in pen
Page 1 of 1 050520-8m/

Laboratory Information:				Project Information:				Analysis Items																							
Lab Name: Associated Laboratories				Name: U-Haul Santa Rosa				TPH-g (8015B)		TPH-d (8015B)		Oxygenates & BTEX (8260B)		COD (410)		BOD (405.1)		HPC (9215)													
Address: 806 N Batavia				Proj. # 93HW014																											
City: Orange State: CA Zip: 92868				PM: YU ZENG																											
Lab Phone: 707-792-1865 Quotation #:				Sampler: B. Myers																											
Due Date:		<input type="checkbox"/> regular <input type="checkbox"/> rush		days		hours		Sample Matrix		Preservative		# of Container		Type of Container																	
Lab Sample ID No.		Sample Description		Date Collected		Time																									
MW-2				5/20/05		1200		Water		HCl		6		40 ml-VOA		X															
MW-2				1/12/05		1200		Water		None		2		2-L Amber		X															
MW-2				1/12/05		1200		Water		None		1		1-L Poly																	
MW-2				1/12/05		1200		Water		H2SO4		1		500 mL Poly																	
MW-2				1/12/05		1200		Water		Na2S2O8		1		100 mL Poly																	
J-01				1/12/05		1200		Water		HCl		6		40 ml-VOA		X															
J-01				1/12/05		1200		Water		None		2		2-L Amber		X															
J-01				1/12/05		1200		Water		None		1		1-L Poly																	
J-01				1/12/05		1200		Water		H2SO4		1		500 mL Poly																	
J-01				1/12/05		1200		Water		Na2S2O8		1		100 mL Poly																	
MW-103				1/14/05		1140		Water		HCl		6		40 ml-VOA		X															
MW-103				1/14/05		1140		Water		None		2		2-L Amber		X															
MW-103				1/14/05		1140		Water		None		1		1-L Poly																	
MW-103				1/14/05		1140		Water		H2SO4		1		500 mL Poly																	
MW-103				1/14/05		1140		Water		Na2S2O8		1		100 mL Poly																	

QC Requirement: ☐ Regular ☐ QA/QC Report ☐ WIP ☐ Raw Data ☐ Extended Raw Data ☐ CLP ☐ ACE ☐ AFCEE ☐ NEESA (E, C or D) ☐ Other (Please specify)

Sample Disposal: ☐ Disposal by Lab ☐ Hold for _____ days after receiving date.

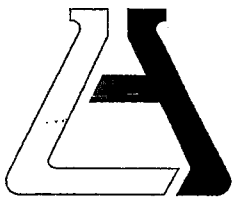
Sample Conditions: ☐ Intact ☐ Broken ☐ Broken ☐ Broken ☐ Broken

Temperature: 2.2 Degrees C Cooler: Ice/No Ice

Relinquished by: [Signature] Date/Time: 5/23/05 10:50

Relinquished by: [Signature] Date/Time: 5/23/05 1:35

Air Bill Number: 25-2301-135



ASSOCIATED LABORATORIES
806 North Batavia - Orange, California 92868 - 714/771-6900

FAX 714/538-1209

CLIENT SOTA Environmental Technology, Inc. (11300)
ATTN: Yu Zeng
5151 Shoreham Place
Suite 260
San Diego, CA 92122

LAB REQUEST 152285

REPORTED 06/28/2005

RECEIVED 06/17/2005

PROJECT U-Haul Santa Rosa

SUBMITTER Client

COMMENTS

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods as indicated on the report. This cover letter is an integral part of the final report.

<u>Order No.</u>	<u>Client Sample Identification</u>
629381	MW-2
629382	J-01
629383	MW-103
629384	Laboratory Method Blank

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

ASSOCIATED LABORATORIES by

Edward S. Behare, Ph.D.
Vice President

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

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TESTING & CONSULTING
Chemical
Microbiological
Environmental

Order #: 629381
Matrix: WATER
Date Sampled: 06/14/2005
Time Sampled: 14:10
Sampled By:

Client: SOTA Environmental Technology, Inc.
Client Sample ID: MW-2

Analyte	Result	DF	DLR	Units	Date/Analyst
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405.1 Biochemical Oxygen Demand (BOD)

BOD	56	1	3.0	mg/L	06/18/05	DK
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410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	200	1	4.0	mg/L	06/23/05	LT
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8015 TEPH Diesel

TEPH Diesel	4.5	5	0.5	mg/L	06/21/05	AF
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Surrogates

				Units	Control Limits
o-Terphenyl (sur)	62			%	55 - 200

8260B BTEX/MTBE Only

Benzene	41	25	25.0	ug/L	06/21/05	LB
Ethyl benzene	240	25	125.0	ug/L	06/21/05	LB
Methyl-tert-butylether (MTBE)	ND	25	25.0	ug/L	06/21/05	LB
Toluene	187	25	125.0	ug/L	06/21/05	LB
Xylenes, total	2650	25	125.0	ug/L	06/21/05	LB
Ethyl-tertbutylether (ETBE)	ND	25	25.0	ug/L	06/21/05	LB
Isopropyl ether (DIPE)	ND	25	25.0	ug/L	06/21/05	LB
Tert-amylmethylether (TAME)	ND	25	25.0	ug/L	06/21/05	LB
Tertiary butyl alcohol (TBA)	ND	25	250.0	ug/L	06/21/05	LB

Surrogates

				Units	Control Limits
Surr1 - Dibromofluoromethane	90			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	92			%	70 - 130
Surr3 - Toluene-d8	102			%	70 - 130
Surr4 - p-Bromofluorobenzene	101			%	70 - 130

9215 Standard Plate Count

Standard Plate Count	3700	1	1	CFU/ml	06/17/05	SM
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 629381

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-2

Date Sampled: 06/14/2005

Time Sampled: 14:10

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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9215 Standard Plate Count

8015B - Gasoline

Gasoline	10700	10	500.0	ug/L	06/22/05	WL
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	190			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 629382

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: J-01

Date Sampled: 06/14/2005

Time Sampled: 15:55

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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405.1 Biochemical Oxygen Demand (BOD)

BOD	16	1	3.0	mg/L	06/18/05	DK
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410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	78	1	4.0	mg/L	06/23/05	LT
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8015 TEPH Diesel

TEPH Diesel	1.0	5	0.5	mg/L	06/21/05	AF
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Surrogates

				Units	Control Limits
o-Terphenyl (sur)	61			%	55 - 200

8260B BTEX/MTBE Only

Benzene	368	10	10.0	ug/L	06/22/05	LB
Ethyl benzene	109	10	50.0	ug/L	06/22/05	LB
Methyl-tert-butylether (MTBE)	190	10	10.0	ug/L	06/22/05	LB
Toluene	267	10	50.0	ug/L	06/22/05	LB
Xylenes, total	236	10	50.0	ug/L	06/22/05	LB
Ethyl-tertbutylether (ETBE)	ND	10	10.0	ug/L	06/22/05	LB
Isopropyl ether (DIPE)	ND	10	10.0	ug/L	06/22/05	LB
Tert-amylmethylether (TAME)	ND	10	10.0	ug/L	06/22/05	LB
Tertiary butyl alcohol (TBA)	ND	10	100.0	ug/L	06/22/05	LB

Surrogates

				Units	Control Limits
Surr1 - Dibromofluoromethane	90			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	88			%	70 - 130
Surr3 - Toluene-d8	104			%	70 - 130
Surr4 - p-Bromofluorobenzene	102			%	70 - 130

9215 Standard Plate Count

Standard Plate Count	1150000	1	1	CFU/ml	06/17/05	SM
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 629382

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: J-01

Date Sampled: 06/14/2005

Time Sampled: 15:55

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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9215 Standard Plate Count

8015B - Gasoline

Gasoline	5340	10	500.0	ug/L	06/22/05	WL
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	176			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 629383

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-103

Date Sampled: 06/14/2005

Time Sampled: 15:40

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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405.1 Biochemical Oxygen Demand (BOD)

BOD	5.0	1	3.0	mg/L	06/18/05	DK
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410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	15	1	4.0	mg/L	06/23/05	LT
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8015 TEPH Diesel

TEPH Diesel	0.38	1	0.1	mg/L	06/21/05	AF
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Surrogates

				Units	Control Limits
o-Terphenyl (sur)	138			%	55 - 200

8260B BTEX/MTBE Only

Benzene	35	1	1	ug/L	06/21/05	LB
Ethyl benzene	69	1	5	ug/L	06/21/05	LB
Methyl-tert-butylether (MTBE)	2.1	1	1	ug/L	06/21/05	LB
Toluene	13	1	5	ug/L	06/21/05	LB
Xylenes, total	95	1	5	ug/L	06/21/05	LB
Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	06/21/05	LB
Isopropyl ether (DIPE)	ND	1	1	ug/L	06/21/05	LB
Tert-amylmethylether (TAME)	ND	1	1	ug/L	06/21/05	LB
Tertiary butyl alcohol (TBA)	ND	1	10	ug/L	06/21/05	LB

Surrogates

				Units	Control Limits
Surr1 - Dibromofluoromethane	90			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	84			%	70 - 130
Surr3 - Toluene-d8	103			%	70 - 130
Surr4 - p-Bromofluorobenzene	104			%	70 - 130

9215 Standard Plate Count

Standard Plate Count	265	1	1	CFU/ml	06/17/05	SM
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 629383

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-103

Date Sampled: 06/14/2005

Time Sampled: 15:40

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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9215 Standard Plate Count

8015B - Gasoline

Gasoline	1070	1	50	ug/L	06/21/05	WL
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	210*			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 629384

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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405.1 Biochemical Oxygen Demand (BOD)

BOD	ND	1	3.0	mg/L	06/18/05	DK
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410.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	ND	1	4.0	mg/L	06/23/05	LT
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8015 TEPH Diesel

TEPH Diesel	ND	1	0.1	mg/L	06/21/05	AF
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Surrogates

				Units	Control Limits
o-Terphenyl (sur)	156			%	55 - 200

8260B BTEX/MTBE Only

Benzene	ND	1	1	ug/L	06/21/05	LB
Ethyl benzene	ND	1	5	ug/L	06/21/05	LB
Methyl-tert-butylether (MTBE)	ND	1	1	ug/L	06/21/05	LB
Toluene	ND	1	5	ug/L	06/21/05	LB
Xylenes, total	ND	1	5	ug/L	06/21/05	LB
Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	06/21/05	LB
Isopropyl ether (DIPE)	ND	1	1	ug/L	06/21/05	LB
Tert-amylmethylether (TAME)	ND	1	1	ug/L	06/21/05	LB
Tertiary butyl alcohol (TBA)	ND	1	10	ug/L	06/21/05	LB

Surrogates

				Units	Control Limits
Surr1 - Dibromofluoromethane	90			%	70 - 130
Surr2 - 1,2-Dichloroethane-d4	99			%	70 - 130
Surr3 - Toluene-d8	100			%	70 - 130
Surr4 - p-Bromofluorobenzene	99			%	70 - 130

9215 Standard Plate Count

Standard Plate Count	< 1	1	1	CFU/ml	06/17/05	SM
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 629384**Client:** SOTA Environmental Technology, Inc.**Matrix:** WATER**Client Sample ID:** Laboratory Method Blank**Date Sampled:****Time Sampled:****Sampled By:**

Analyte	Result	DF	DLR	Units	Date/Analyst
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9215 Standard Plate Count**8015B - Gasoline**

Gasoline	ND	1	50	ug/L	06/21/05	WL
Surrogates				Units	Control Limits	
a,a,a-Trifluorotoluene	77			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: LCS/LCSD

Matrix: WATER

Prep. Date: June 20, 2005

Analysis Date: June 20, 2005

D#s in Batch: LR 152008, 152031, 152174, 152175, 152176, 152035, 152177, 152179, 152178, 152257,
LR 152285, 151916

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
TPH	8015M-G	ND	500	539	520	108	104	4

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

%REC LIMITS = 70 - 130
RPD LIMITS = 30

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	93
LCS	165
LCSD	165

AAA-TFT = a,a,a-Trifluorotoluene

ASSOCIATED LABORATORIES
LCS REPORT FORM

QC Sample: LCS/LCSD

Matrix: WATER

Prep. Date: June 20, 2005

Analysis Date: June 20, 2005

LAB ID#'s in Batch: LR 152008, 152031, 152174, 152175, 152176, 152035, 152177, 152179, 152178, 152257,
LR 152285, 151916

REPORTING UNITS = ug/L

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Test	Method	Sample Result	Spike Added	Matrix LCS	Matrix LCSD	%Rec LCS	%Rec LCSD	RPD
Benzene	8021	ND	20	21.4	21.6	107	108	1
Toluene	8021	ND	20	20.9	21.1	105	106	1
Ethylbenzene	8021	ND	20	20.2	20.4	101	102	1
Xylenes	8021	ND	60	63.1	63.2	105	105	0

ND = Not Detected

RPD = Relative Percent Difference of Matrix LCS and Matrix LCSD

%REC-LCS & LCSD = Percent Recovery of LCS & LCSD

%REC LIMITS = 70 - 130
RPD LIMITS = 30

SURROGATE RECOVERY

Sample No.	AAA-TFT
QC Limit	55-200
Method Blank	93
LCS	105
LCSD	105

AAA-TFT = a,a,a-Trifluorotoluene

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: Std. Sol

Matrix: WATER

Prep. Date: June 18, 2005

Analysis Date: June 23, 2005

ID#'s in Batch: LR 152294, 152370, 152285

Reporting Units = mg/L

PREPARATION BLANK / LAB CONTROL SAMPLE RESULTS

Test	Method	PREP. BLANK	LCS				
		Value	Result	True	%Rec	L.Limit	H.Limit
BOD	405.1	ND	203.16	200	102	80%	120%

Value = Preparation Blank Value; ND = Not-Detected

LCS Result = Lab Control Sample Result

True = True Value of LCS

L.Limit / H.Limit = LCS Control Limits

**ASSOCIATED LABORATORIES
QA REPORT FORM**

QC Sample: 152285-629383

Matrix: WATER

Prep. Date: June 23, 2005

Analysis Date: June 23, 2005

ID#'s in Batch: LR 152146, 152285, 152279, 152280, 152281, 152443, 152444, 152445, 152446

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Sample Result	Spike Added	Matrix Spike	Matrix Spike Dup	%Rec MS	%Rec MSD	RPD
COD	410.4	15	100	102.5	107.5	88	93	5

ND = Not-Detected

RPD = Relative Percent Difference of Matrix Spike and Matrix Spike Duplicate

%REC-MS & MSD = Percent Recovery of Matrix Spike & Matrix Spike Duplicate

%REC LIMITS = 75 - 125

RPD LIMITS = 20

PREPARATION BLANK / LAB CONTROL SAMPLE RESULTS

PREP BLK	LCS				
Value	Result	True	%Rec	L.Limit	H.Limit
ND	95	100	95	80%	120%

Value = Preparation Blank Value

LCS Result = Lab Control Sample Result

True = True Value of LCS

L.Limit / H.Limit = LCS Control Limits

**ASSOCIATED LABORATORIES
LCS REPORT FORM**

QC Sample: LCS/LCSD
Matrix: WATER
Extraction Method : 3510C
Prep. Date: June 21, 2005
Analysis Date June 21, 2005
ID#'s in Batch: LR 152285, 152308

LAB CONTROLLED SPIKE / LAB CONTROLLED DUPLICATE RESULT

Reporting Units = mg/L

Test	Method	Method Blank	Spike Added	LCS Spike	LCSD Spk. Dup	%Rec LCS	%Rec LCSD	RPD
DIESEL	8015D	ND	1	0.89	0.85	89	85	5

ND = Not Detected

LCS Result = Lab Control Sample Result

%REC-LCS & LCSD = Percent Recovery of LCS Spike & LCS Spike Duplicate

RPD = Relative Percent Difference of LCS Spike and LCS Spike Duplicate

<i>%REC LIMITS = 70 - 130</i>

<i>RPD LIMITS = 30</i>

SURROGATE RECOVERY

Sample No.	O-Terphenyl
QC Limit	55-200
Method Blank	156
LCS	115
LCSD	110

ASSOCIATED LABORATORIES
QA REPORT FORM - METHOD 8260 / 624 / 524.2

QC Sample: MS / MSD - Water Samples 152167-785
 Analysis Date: June 21, 2005 11:14 PM
 Applies to: LR 152261, 152168, 152285, 152167, 152229
 Reporting Units = ug/L

Matrix Spike / Matrix Spike Duplicate

Test	Sample Result	Spike Added	Matrix Spike	Matrix Spk Dup.	%Rec MS	%Rec MSD	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene	ND	50.0	43.89	46.39	88	93	6	22	59-172
MTBE	4.49	50.0	49.57	51.29	90	94	3	24	62-137
Benzene	ND	50.0	49.08	51.91	98	104	6	24	62-137
Trichloroethene	ND	50.0	43.88	46.24	88	92	5	21	66-142
Toluene	ND	50.0	51.13	54.58	102	109	7	21	59-139
Chlorobenzene	ND	50.0	50.33	53.79	101	108	7	21	60-133

QC Sample: LCS/LCSD 8:55 PM
 Analysis Date: June 21, 2005

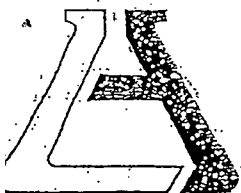
Lab Controlled Spike / Lab Controlled Spike Duplicate

Test	Sample Result	Spike Added	LCS Spike	LCS Spk Dup.	%Rec LCS	%Rec LCS D	RPD	QC Limits	
								RPD	%REC
1,1-Dichloroethene	ND	50.0	45.45	42.47	91	85	7	22	59-172
MTBE	ND	50.0	44.79	42.98	90	86	4	24	62-137
Benzene	ND	50.0	50.99	47.86	102	96	6	24	62-137
Trichloroethene	ND	50.0	47.18	45.67	94	91	3	21	66-142
Toluene	ND	50.0	52.88	50.53	106	101	5	21	59-139
Chlorobenzene	ND	50.0	53.19	50.34	106	101	6	21	60-133

Method Blank = All ND

SURROGATE (QC Limits : 70-135)

Compound	MB 1	MB 2	MS	MSD	LCS	LCSD
DBFM	90	88	92	92	90	89
1,2-DCA	99	96	89	87	89	91
Tol-d8	100	103	95	98	98	99
p-BFB	99	97	103	99	96	100



ASSOCIATED LABORATORIES

06 North Batavia - Orange, California 92868-1225 - 714/771-6900 FAX 714/538-1209

Cooler Receipt Form

Client: Sota Project: ✓

Date Cooler Received: 6/17 Date Cooler Opened: 6/17/05

Was cooler scanned for presence of radioactivity?

Yes/No

If yes was radioactivity results above 25 cpm?

Yes/No

Was a shipper's packing slip attached to the cooler?

Yes/No

If the cooler had custody seal(s), were they signed and intact?

Yes/No/Na

Was the cooler packed with: Ice ✓ Ice Packs ✓ Bubble wrap

Styrofoam Paper None Other

Cooler Temperature: 3.0°C *

*cooler needs to be received @ 4°C with an acceptable range of 2° - 6 °C

If samples were hand delivered do they meet the temp. criteria, which should be @ 4°C with an acceptable range of 2° - 6 °C?

Yes/No

If no explain: _____

Were all samples sealed in plastic bags?

Yes/No

Did all samples arrive intact? If no, indicate below.

Yes/No

Were all samples labeled correctly? (ID's Dates, Times) If no, indicate below.

Yes/No

Can the tests required be ran with the provided containers, If no indicate below.

Yes/No

Was sufficient sample volume sent for all containers?

Yes/No

Were any VOA vials received with head space?

Yes/No/Na

Was the correct preservatives used?

Yes/No/Na

If no, see the pH log for a list of samples containers regarding pH

Any other important information: _____

Receiving Department: m Date: 6/17



SOTA Environmental Technology Inc.

16835 W. Bernardo Drive, Suite 212

San Diego, CA 92127-1613

Tel: (858) 485-8100

Fax: (858) 485-0812

Chain of Custody

COC# _____ Please Print in pen

Page _____ of _____

Laboratory Information:

Lab Name: Associated Laboratories

Address: 806 N Batavia

City: Orange State: CA Zip: 92868

Lab Phone: 707-792-1865 Quotation #:

Project Information:

Name: U-Haul Santa Rosa

Proj. # 93HW014

PM: YU ZENG

Sampler: B Brown

Due Date: ☒ regular ☐ rush days _____ hours _____

Lab Sample ID _____ Date _____ Time _____
No. _____ Collected _____

Sample Description _____

Sample Matrix _____

Preservative _____

Type of Container _____

of Container _____

Analysis Items

TPH-g (8015B)

TPH-d (8015B)

Oxygenates & BTX (8260B)

COD (410)

BOD (405.1)

HPC (9215)

Preservative

1 HCL

2 HNO3

3 H2SO4

4 NaOH

5 Other

(N) Not Preserved

Sample Matrix

1 Drinking Water

2 Waste Water

3 Oil/Organic Liquid

4 Solid/Soil

5 Aqueous

6 Air

Temperature: _____ Degrees C

Cooler: Ice / No Ice

Relinquished by: _____ Date/Time _____

Relinquished by: _____ Date/Time _____

Air Bill Number: _____



ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92868 - 714/771-6900

FAX 714/538-1209

CLIENT SOTA Environmental Technology, Inc. (11300)

ATTN: Yu Zeng

5151 Shoreham Place

Suite 260

San Diego, CA 92122

LAB REQUEST 152968

REPORTED 07/14/2005

RECEIVED 07/01/2005

PROJECT #93HW014
U-Haul Santa Rosa

SUBMITTER Client

COMMENTS * Matrix Inteferece

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods as indicated on the report. This cover letter is an integral part of the final report.

<u>Order No.</u>	<u>Client Sample Identification</u>
633231	MW-2
633232	J-01
633233	MW-103
633234	MW-1
633235	MW-101
633236	MW-102
633237	MW-104
633238	MW-201
633239	MW-202
633240	MW-203
633241	MW-301

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

ASSOCIATED LABORATORIES by.

Edward S. Behare, Ph.D.
Vice President

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

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TESTING & CONSULTING
Chemical
Microbiological
Environmental



ASSOCIATED LABORATORIES

806 North Batavia - Orange, California 92868 - 714/771-6900

FAX 714/538-1209

CLIENT SOTA Environmental Technology, Inc. (11300)
ATTN: Yu Zeng
5151 Shoreham Place
Suite 260
San Diego, CA 92122

LAB REQUEST 152968

REPORTED 07/14/2005

RECEIVED 07/01/2005

PROJECT #93HW014
U-Haul Santa Rosa

SUBMITTER Client

COMMENTS * Matrix Interference

This laboratory request covers the following listed samples which were analyzed for the parameters indicated on the attached Analytical Result Report. All analyses were conducted using the appropriate methods as indicated on the report. This cover letter is an integral part of the final report.

<u>Order No.</u>	<u>Client Sample Identification</u>
633242	MW-401
633243	MW-402
633244	UH-P1
633245	UH-P2
633246	Banker Tank
633247	Laboratory Method Blank

Thank you for the opportunity to be of service to your company. Please feel free to call if there are any questions regarding this report or if we can be of further service.

ASSOCIATED LABORATORIES by,

Edward S. Behare, Ph.D.
Vice President

NOTE: Unless notified in writing, all samples will be discarded by appropriate disposal protocol 30 days from date reported.

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TESTING & CONSULTING
Chemical
Microbiological
Environmental

Order #: 633231

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-2

Date Sampled: 06/29/2005

Time Sampled: 12:25

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

5.1 Biochemical Oxygen Demand (BOD)

BOD	60	1	3.0	mg/L	07/11/05	LT
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10.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	130	1	4.0	mg/L	07/11/05	LT
------------------------	-----	---	-----	------	----------	----

015

TEPH Diesel	5.4	5	0.5	mg/L	07/08/05	AF
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Surrogates

	Units	Control Limits
o-Terphenyl (sur)	100	% 55 - 200

260B BTEX/MTBE Only

Benzene	26	10	10.0	ug/L	07/07/05	AM
Ethyl benzene	118	10	50.0	ug/L	07/07/05	AM
Methyl-tert-butylether (MTBE)	17	10	10.0	ug/L	07/07/05	AM
Toluene	59	10	50.0	ug/L	07/07/05	AM
Xylenes, total	907	10	50.0	ug/L	07/07/05	AM
Ethyl-tertbutylether (ETBE)	ND	10	10.0	ug/L	07/07/05	AM
Isopropyl ether (DIPE)	ND	10	10.0	ug/L	07/07/05	AM
Tert-amylmethylether (TAME)	ND	10	10.0	ug/L	07/07/05	AM
Tertiary butyl alcohol (TBA)	ND	10	100.0	ug/L	07/07/05	AM

Surrogates

	Units	Control Limits
Surr1 - Dibromofluoromethane	99	% 70 - 130
Surr2 - 1,2-Dichloroethane-d4	110	% 70 - 130
Surr3 - Toluene-d8	107	% 70 - 130
Surr4 - p-Bromofluorobenzene	109	% 70 - 130

0215 Standard Plate Count

Standard Plate Count	280000	1	1	CFU/ml	07/01/05	RG
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633231

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-2

Date Sampled: 06/29/2005

Time Sampled: 12:25

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

115 Standard Plate Count

115B - Gasoline

Gasoline	9530	5	250.0	ug/L	07/06/05 HY
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	273*			%	55 - 200

DLR = Detection limit for reporting purposes. ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633232

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: J-01

Date Sampled: 06/29/2005

Time Sampled: 12:35

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
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5.1 Biochemical Oxygen Demand (BOD)

BOD	13	1	3.0	mg/L	07/11/05 LT
-----	----	---	-----	------	-------------

5.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	45	1	4.0	mg/L	07/11/05 LT
------------------------	----	---	-----	------	-------------

5.15

TEPH Diesel	0.93	1	0.1	mg/L	07/09/05 AF
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Surrogates

	Units	Control Limits
o-Terphenyl (sur)	121	% 55 - 200

260B BTEX/MTBE Only

Benzene	160	1	1	ug/L	07/07/05 AM
Ethyl benzene	69	1	5	ug/L	07/07/05 AM
Methyl-tert-butylether (MTBE)	190	1	1	ug/L	07/07/05 AM
Toluene	75	1	5	ug/L	07/07/05 AM
Xylenes, total	114	1	5	ug/L	07/07/05 AM
Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	07/07/05 AM
Isopropyl ether (DIPE)	ND	1	1	ug/L	07/07/05 AM
Tert-amylmethylether (TAME)	ND	1	1	ug/L	07/07/05 AM
Tertiary butyl alcohol (TBA)	ND	1	10	ug/L	07/07/05 AM

Surrogates

	Units	Control Limits
Surr1 - Dibromofluoromethane	113	% 70 - 130
Surr2 - 1,2-Dichloroethane-d4	80	% 70 - 130
Surr3 - Toluene-d8	106	% 70 - 130
Surr4 - p-Bromofluorobenzene	113	% 70 - 130

215 Standard Plate Count

Standard Plate Count	220000	1	1	CFU/ml	07/01/05 RG
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DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633232

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: J-01

Date Sampled: 06/29/2005

Time Sampled: 12:35

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
15 Standard Plate Count					
15B - Gasoline					
Gasoline	3200	1	50	ug/L	07/06/05 HY
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	269*			%	55 - 200

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor



Order #: 633233

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: MW-103

Date Sampled: 06/29/2005

Time Sampled: 12:10

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
---------	--------	----	-----	-------	--------------

05.1 Biochemical Oxygen Demand (BOD)

BOD	7.0	1	3.0	mg/L	07/11/05 LT
-----	-----	---	-----	------	-------------

10.4 Chemical Oxygen Demand (COD)

Chemical Oxygen Demand	12	1	4.0	mg/L	07/11/05 LT
------------------------	----	---	-----	------	-------------

015

TEPH Diesel	0.17	1	0.1	mg/L	07/09/05 AF
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Surrogates

Units Control Limits

o-Terphenyl (sur)	128			%	55 - 200
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1260B BTEX/MTBE Only

Benzene	52	1	1	ug/L	07/06/05 AM
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Ethyl benzene	72	1	5	ug/L	07/06/05 AM
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Methyl-tert-butylether (MTBE)	2.1	1	1	ug/L	07/06/05 AM
-------------------------------	-----	---	---	------	-------------

Toluene	25	1	5	ug/L	07/06/05 AM
---------	----	---	---	------	-------------

Xylenes, total	158	1	5	ug/L	07/06/05 AM
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Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	07/06/05 AM
-----------------------------	----	---	---	------	-------------

Isopropyl ether (DIPE)	ND	1	1	ug/L	07/06/05 AM
------------------------	----	---	---	------	-------------

Tert-amylmethylether (TAME)	ND	1	1	ug/L	07/06/05 AM
-----------------------------	----	---	---	------	-------------

Tertiary butyl alcohol (TBA)	ND	1	10	ug/L	07/06/05 AM
------------------------------	----	---	----	------	-------------

Surrogates

Units Control Limits

Surr1 - Dibromofluoromethane	104			%	70 - 130
------------------------------	-----	--	--	---	----------

Surr2 - 1,2-Dichloroethane-d4	114			%	70 - 130
-------------------------------	-----	--	--	---	----------

Surr3 - Toluene-d8	104			%	70 - 130
--------------------	-----	--	--	---	----------

Surr4 - p-Bromofluorobenzene	117			%	70 - 130
------------------------------	-----	--	--	---	----------

9215 Standard Plate Count

Standard Plate Count	2300	1	1	CFU/ml	07/01/05 RG
----------------------	------	---	---	--------	-------------

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633233

Matrix: WATER

Date Sampled: 06/29/2005

Time Sampled: 12:10

Sampled By:

Client: SOTA Environmental Technology, Inc.

Client Sample ID: MW-103

Analyte	Result	DF	DLR	Units	Date/Analyst
15 Standard Plate Count					
15B - Gasoline					
Gasoline	1080	1	50	ug/L	07/06/05 HY
Surrogates				Units	Control Limits
a,a,a-Trifluorotoluene	420*			%	55 - 200

DLR = Detection limit for reporting purposes. ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633247

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank

Date Sampled:

Time Sampled: :

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
<u>5.1 Biochemical Oxygen Demand (BOD)</u>					
BOD	ND	1	3.0	mg/L	07/11/05 LT
<u>0.4 Chemical Oxygen Demand (COD)</u>					
Chemical Oxygen Demand	ND	1	4.0	mg/L	07/11/05 LT
<u>015</u>					
TEPH Diesel	ND	1	0.1	mg/L	07/08/05 AF
Surrogates				Units	Control Limits
o-Terphenyl (sur)	114			%	55 - 200
<u>260B Volatile Organic Compounds</u>					
1,1,1,2-Tetrachloroethane	ND	1	5	ug/L	07/06/05 AM
1,1,1-Trichloroethane	ND	1	5	ug/L	07/06/05 AM
1,1,2,2-Tetrachloroethane	ND	1	5	ug/L	07/06/05 AM
1,1,2-Trichloroethane	ND	1	5	ug/L	07/06/05 AM
1,1,2-Trichlorotrifluoroethane	ND	1	5	ug/L	07/06/05 AM
1,1-Dichloroethane	ND	1	5	ug/L	07/06/05 AM
1,1-Dichloropropene	ND	1	5	ug/L	07/06/05 AM
1,2,3-Trichlorobenzene	ND	1	5	ug/L	07/06/05 AM
1,2,3-Trichloropropane	ND	1	5	ug/L	07/06/05 AM
1,2,4-Trichlorobenzene	ND	1	5	ug/L	07/06/05 AM
1,2,4-Trimethylbenzene	ND	1	5	ug/L	07/06/05 AM
1,2-Dibromo-3-chloropropane	ND	1	5	ug/L	07/06/05 AM
1,2-Dibromoethane	ND	1	5	ug/L	07/06/05 AM
1,2-Dichlorobenzene	ND	1	5	ug/L	07/06/05 AM
1,2-Dichloroethane	ND	1	5	ug/L	07/06/05 AM
1,2-Dichloropropane	ND	1	5	ug/L	07/06/05 AM
1,3,5-Trimethylbenzene	ND	1	5	ug/L	07/06/05 AM
1,3-Dichlorobenzene	ND	1	5	ug/L	07/06/05 AM

DLR = Detection limit for reporting purposes. ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633247

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank

Date Sampled:

Time Sampled: ;

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
60B Volatile Organic Compounds					
1,3-Dichloropropane	ND	1	5	ug/L	07/06/05 AM
1,4-Dichlorobenzene	ND	1	5	ug/L	07/06/05 AM
1-Chlorohexane	ND	1	5	ug/L	07/06/05 AM
2,2-Dichloropropane	ND	1	5	ug/L	07/06/05 AM
2-Butanone (MEK)	ND	1	100	ug/L	07/06/05 AM
2-Chlorooctyl vinyl ether	ND	1	5	ug/L	07/06/05 AM
2-Chlorotoluene	ND	1	5	ug/L	07/06/05 AM
2-Hexanone	ND	1	20	ug/L	07/06/05 AM
4-Chlorotoluene	ND	1	5	ug/L	07/06/05 AM
4-Methyl -2- Pentanone (MIBK)	ND	1	10	ug/L	07/06/05 AM
Acetone	ND	1	100	ug/L	07/06/05 AM
Acetonitrile	ND	1	50	ug/L	07/06/05 AM
Acrolein	ND	1	200	ug/L	07/06/05 AM
Acrylonitrile	ND	1	10	ug/L	07/06/05 AM
Allyl chloride	ND	1	5	ug/L	07/06/05 AM
Benzyl chloride	ND	1	5	ug/L	07/06/05 AM
Bromobenzene	ND	1	5	ug/L	07/06/05 AM
Bromochloromethane	ND	1	5	ug/L	07/06/05 AM
Bromodichloromethane	ND	1	5	ug/L	07/06/05 AM
Bromoforn	ND	1	5	ug/L	07/06/05 AM
Bromomethane	ND	1	5	ug/L	07/06/05 AM
Carbon Disulfide	ND	1	5	ug/L	07/06/05 AM
Carbon tetrachloride	ND	1	5	ug/L	07/06/05 AM
Chloroethane	ND	1	5	ug/L	07/06/05 AM
Chloroform	ND	1	5	ug/L	07/06/05 AM
Chloromethane	ND	1	5	ug/L	07/06/05 AM
cis-1,2-Dichloroethene	ND	1	5	ug/L	07/06/05 AM
cis-1,3-Dichloropropene	ND	1	5	ug/L	07/06/05 AM
cis-1,4-Dichloro-2-butene	ND	1	20	ug/L	07/06/05 AM
Dibromochloromethane	ND	1	5	ug/L	07/06/05 AM
Dibromomethane	ND	1	5	ug/L	07/06/05 AM
Dichlorodifluoromethane	ND	1	5	ug/L	07/06/05 AM
Ethyl methacrylate	ND	1	50	ug/L	07/06/05 AM

DLR = Detection limit for reporting purposes. ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633247

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank

Date Sampled:

Time Sampled: :

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
260B Volatile Organic Compounds					
Hexachlorobutadiene	ND	1	5	ug/L	07/06/05 AM
Iodomethane	ND	1	5	ug/L	07/06/05 AM
Isopropylbenzene (Cumene)	ND	1	5	ug/L	07/06/05 AM
Methacrylonitrile	ND	1	35	ug/L	07/06/05 AM
Methyl methacrylate	ND	1	5	ug/L	07/06/05 AM
Methylene chloride	ND	1	5	ug/L	07/06/05 AM
n-Butylbenzene	ND	1	5	ug/L	07/06/05 AM
n-Propylbenzene	ND	1	5	ug/L	07/06/05 AM
Naphthalene	ND	1	5	ug/L	07/06/05 AM
p-Isopropyltoluene	ND	1	5	ug/L	07/06/05 AM
Pentachloroethane	ND	1	5	ug/L	07/06/05 AM
Propionitrile	ND	1	100	ug/L	07/06/05 AM
sec-Butylbenzene	ND	1	5	ug/L	07/06/05 AM
Styrene	ND	1	5	ug/L	07/06/05 AM
tert-Butylbenzene	ND	1	5	ug/L	07/06/05 AM
Tetrachloroethene	ND	1	5	ug/L	07/06/05 AM
trans-1,2-Dichloroethene	ND	1	5	ug/L	07/06/05 AM
trans-1,3-Dichloropropene	ND	1	5	ug/L	07/06/05 AM
trans-1,4-Dichloro-2-butene	ND	1	20	ug/L	07/06/05 AM
Trichlorofluoromethane	ND	1	5	ug/L	07/06/05 AM
Vinyl acetate	ND	1	50	ug/L	07/06/05 AM
Vinyl chloride	ND	1	5	ug/L	07/06/05 AM
Benzene	ND	1	1	ug/L	07/06/05 AM
Ethyl benzene	ND	1	5	ug/L	07/06/05 AM
Methyl-tert-butylether (MTBE)	ND	1	1	ug/L	07/06/05 AM
Toluene	ND	1	5	ug/L	07/06/05 AM
Xylenes, total	ND	1	5	ug/L	07/06/05 AM
Ethyl-tertbutylether (ETBE)	ND	1	1	ug/L	07/06/05 AM
Isopropyl ether (DIPE)	ND	1	1	ug/L	07/06/05 AM
Tert-amylmethylether (TAME)	ND	1	1	ug/L	07/06/05 AM
Tertiary butyl alcohol (TBA)	ND	1	10	ug/L	07/06/05 AM
Surrogates				Units	Control Limits

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report



Order #: 633247

Client: SOTA Environmental Technology, Inc.

Matrix: WATER

Client Sample ID: Laboratory Method Blank

Date Sampled:

Time Sampled:

Sampled By:

Analyte	Result	DF	DLR	Units	Date/Analyst
2260E Volatile Organic Compounds					
Surr1 - Dibromofluoromethane	97			%	70 - 135
Surr2 - 1,2-Dichloroethane-d4	113			%	70 - 135
Surr3 - Toluene-d8	106			%	70 - 135
Surr4 - p-Bromofluorobenzene	107			%	70 - 135

2215 Standard Plate Count

Standard Plate Count	< 1	1	1	CFU/ml	07/01/05	RG
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2015B - Gasoline

Gasoline	ND	1	50	ug/L	07/05/05	HY
Surrogates				Units	Control Limits	
a.a.a-Trifluorotoluene	60			%	55 - 200	

DLR = Detection limit for reporting purposes, ND = Not Detected below indicated detection limit, DF = Dilution Factor

ASSOCIATED LABORATORIES

Analytical Results Report





ASSOCIATED LABORATORIES

16 North Batavia - Orange, California 92868-1225 - 714/771-6900 FAX 714/538-1209

Cooler Receipt Form

Client: Setra Env Project: 934W1014

Date Cooler Received: 07/01 Date Cooler Opened: 7/1/05

Was cooler scanned for presence of radioactivity?
If yes was radioactivity results above 25 cpm?

Yes/No
Yes/No

Was a shipper's packing slip attached to the cooler?

Yes/No

If the cooler had custody seal(s), were they signed and intact?

Yes/No/Na

Was the cooler packed with: Ice ☒ Ice Packs ☐ Bubble wrap ☐
Styrofoam ☐ Paper ☐ None ☐ Other ☐

Cooler Temperature: in range 1.5°C ± 3.4°C in 5 coolers
*cooler needs to be received @ 4°C with an acceptable range of 2°- 6 °C

If samples were hand delivered do they meet the temp. criteria, which should be @ 4°C with an acceptable range of 2°- 6 °C?

Yes/No

If no explain: _____

Were all samples sealed in plastic bags?

Yes/No

Did all samples arrive intact? If no, indicate below.

Yes/No

Were all samples labeled correctly? (ID's Dates, Times) If no, indicate below.

Yes/No

Can the tests required be ran with the provided containers, If no indicate below.

Yes/No

Was sufficient sample volume sent for all containers?

Yes/No

Were any VOA vials received with head space?

Yes/No/Na

Was the correct preservatives used?

Yes/No/Na

If no, see the pH log for a list of samples containers regarding pH.

Any other important information: _____

Receiving Department:

100-F 890/890 P 1981-1

714-538-1209

FROM-Associated Laboratories

JUL-15-2005 08:17



SOTA Environmental Technology Inc.

16835 W. Bernardo Drive, Suite 212

San Diego, CA 92127-1613

Tel: (858) 485-8100 Fax: (858) 485-0812

Chain of Custody

COC#

Please Print in pen

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152968

Laboratory Information:				Project Information:				Analysis Items											
Lab Name: Associated Laboratories				Name: U-Haul Santa Rosa				TPH-g (8015B)	TPH-d (8015B)	Oxygenates & BTEX (8260B)	COD (410)	BOD (405.1)	HPC (9215)						
Address: 806 N Balavia				Proj. # 93HW014															
City: Orange State: CA Zip: 92868				PM: YU ZENG															
Lab Phone: 707-792-1865 Quotation #:				Sampler: <i>Yu Zeng</i>															
Due Date:	<input checked="" type="checkbox"/> regular	<input type="checkbox"/> rush	days	hours	Sample Matrix	Preservative	# of Container	Type of Container											
Lab Sample ID No.				Date Collected															
MW-2					Water	HCl	6	40 ml-VOA	X										
MW-2					Water	None	2	2-L Amber	X										
MW-2					Water	None	1	1-L Poly											
MW-2					Water	H2SO4	1	500 mL Poly											
MW-2					Water	Na2S2O8	1	100 mL Poly											
J-01					Water	HCl	6	40 ml-VOA	X										
J-01					Water	None	2	2-L Amber	X										
J-01					Water	None	1	1-L Poly											
J-01					Water	H2SO4	1	500 mL Poly											
J-01					Water	Na2S2O8	1	100 mL Poly											
MW-103					Water	HCl	6	40 ml-VOA	X										
MW-103					Water	None	2	2-L Amber	X										
MW-103					Water	None	1	1-L Poly											
MW-103					Water	H2SO4	1	500 mL Poly											
MW-103					Water	Na2S2O8	1	100 mL Poly											

QC Requirement: ☐ Regular ☐ QA/QC Report ☐ WIP ☐ Raw Data ☐ Extended Raw Data ☐ CLP ☐ ACE ☐ AFCEE ☐ NEESA (E,C or D) ☐ Other (Please specify)Sample Disposal: ☐ Disposal by Lab ☐ Hold for _____ days after receiving date.Sample Conditions: ☐ Intact ☐ Broken Cooler Seal: ☐ Intact ☐ Broken ☐ None

Temperature: _____ Degrees C Cooler: Ice / No Ice

Relinquished by: *Yu Zeng* Date/Time: 6-30-05 / 1430 Received by: *Yu Zeng* Date/Time: 7-1-05 / 950

Relinquished by: _____ Date/Time: _____

Air Bill Number: *103580844*

6:50

7/1/05 2:40

BORING NUMBER: RW-1
GROUND SURFACE ELEVATION: MSL

CHEMICAL (ppm)	BLOW COUNT (blows/ft.)	WATER SAMPLE	SOIL SAMPLE	VAPOR SAMPLE	DEPTH (ft.)	GRAPHIC LOG	SOIL CLASS	DRILLING CONTRACTOR: Clear Heart Drilling		DRILL RIG: DR10 K-1
								DRILLING METHOD: Hollow-Stem Auger		BORING DIAMETER: 8
								SAMPLE METHOD: MOD Cal Sampler		LOGGED BY: YZ
								DRILL DATE: 5/12/05		CHECKED BY: D. Murthy
								DESCRIPTION / INTERPRETATION		
						AP		Asphalt/Concrete Pavement: Approx. 4" thick		
						SM		Gray-brown, moist, medium dense, silty, fine to medium SAND. @ ~2': Changes to dark gray, wet.		
0.0	51				5	CL		Light gray-brown, moist, firm to stiff, fine, sandy CLAY.		
						SM-GM		Yellow-brown to gray-brown, moist, dense, silty SAND and GRAVEL, up to approx. 1" in diam.		
0.0	15				10	SP-GP		Gray, wet, medium dense, coarse SAND and fine GRAVEL; with a little medium sand and trace of silt.		
						GC		Gray-brown, saturated, medium dense, clayey, fine GRAVEL.		
42	29				15	SP		Dark gray, saturated, medium dense, medium to coarse SAND; trace of silt; moderate diesel odor.		
						CL		Brown, saturated, stiff, CLAY; with a little fine sand.		
52	24				20					
					25					
					30					
								<p>Total Depth = 24'</p> <p>Groundwater Encountered @ 14.0'</p> <p>No Caving</p> <p>Ozone Sparging Point Set To 20.5' to 23.5', connect with 20 feet long stainless steel raiser pipe to the surface</p> <p>Backfilled w/ 1 foot #2 1/12 sand, then fill w/Net Cement</p> <p>Ozone Sparging Well Installed on 5/12/05</p>		

BORING NUMBER: RW-2
GROUND SURFACE ELEVATION: MSL

CHEMICAL (ppm)	BLOW COUNT (blows/ft.)	WATER SAMPLE	SOIL SAMPLE	VAPOR SAMPLE	DEPTH (ft.)	GRAPHIC LOG	SOIL CLASS	DESCRIPTION / INTERPRETATION
								DRILLING CONTRACTOR: Clear Heart Drilling DRILLING METHOD: Hollow-Stem Auger SAMPLE METHOD: MOD Cal Sampler DRILL DATE: 5/12/05
								DRILL RIG: DR10 K-1 BORING DIAMETER: 8 LOGGED BY: YZ CHECKED BY: D. Murthy
								Asphalt/Concrete Pavement: Approx. 4" thick Gray-brown, moist, medium dense, silty, fine to medium SAND. @ ~2': Changes to dark gray, wet.
								Light gray-brown, moist, firm to stiff, fine, sandy CLAY.
								Yellow-brown to gray-brown, moist, dense, silty SAND and GRAVEL, up to approx. 1" in diam.
								Gray, wet, medium dense, coarse SAND and fine GRAVEL; with a little medium sand and trace of silt.
								Gray-brown, saturated, medium dense, clayey, fine GRAVEL.
								Dark gray, saturated, medium dense, medium to coarse SAND; trace of silt; moderate diesel odor.
								Brown, saturated, stiff, CLAY; with a little fine sand.
								Total Depth = 24' Groundwater Encountered @ 14.0' No Caving Ozone Sparging Point Set To 20.5' to 23.5', connect with 20 feet long stainless steel raiser pipe to the surface Backfilled w/ 1 foot #2 1/12 sand, then fill w/Net Cement Ozone Sparging Well Installed on 5/12/05